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Appendix G

Analytical Results - Victoria Golf Course

SFUND RECORDS CTR 2388349 Lockheed Martin Environmental Services

**Environmental Services Assistance Team, Region 9** 

301 Howard Street, Suite 970, San Francisco, CA 94105-2241

Phone: 415-278-0570 Fax: 415-278-0588

<u>MEMORANDUM</u>

TO:

Rachel Loftin

Site Assessment Manager

States Planning and Assessment Office, SFD-5

THROUGH:

Rose Fong Col

ESAT Regional Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Jack Berges

Team Manager

Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005 Work Assignment No.: 9-96-0-4 Technical Direction No.: 9604112

DATE:

February 10, 1997

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE:

Victoria Golf Course

SITE ACCOUNT NO.:

CERCLIS ID NO.:

CAD980818926

CASE NO.: SDG NO.:

25218 Memo #01 YX323

zz

LABORATORY:

American Technical & Analytical Services (ATAS)

ANALYSIS:

Volatiles and Semivolatiles

SAMPLES:

12 Water Samples (see Case Summary)

COLLECTION DATE:

December 9 through 13, 1996

REVIEWER:

Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Larry Marchin, TPO USEPA Region 7

TPO: [ ]FYI

[X] Attention

[ ]Action

SAMPLING ISSUES: [X] Yes

[ ]No

97-02-10-HDB-01/25218M01.RPT

VGC/WOC/FILL

#### Data Validation Report

Case No.:

25218 Memo #01

Victoria Golf Course

Laboratory: American Technical & Analytical Services (ATAS)

Reviewer:

Dina David-Bailey, ESAT/Lockheed

February 10, 1997

#### I. Case Summary

#### SAMPLE INFORMATION:

VOA and BNA Samples: YX322 through YX326, YX328 through YX333, and

YX363

Concentration and Matrix:

Low Level Groundwater Volatiles and Semivolatiles

Analysis: SOW: OLM03.2

Collection Date: December 9 through 13, 1996 Sample Receipt Date: December 11, 13, and 14, 1996

BNA Extraction Date: December 12 and 16, 1996

VOA Analysis Date: December 12 and 17, 1996

BNA Analysis Date: December 18, 30, and 31, 1996

and January 17, 1997

### FIELD QC:

Trip Blanks (TB): None

Field Blanks (FB): YX331

Equipment Blanks (EB): YX330, YX332, and YX333

Background Samples (BG): YX324 and YX325 Field Duplicates (D1): YX326 and YX363

#### METHOD BLANKS AND ASSOCIATED SAMPLES:

YX323, YX323MS, YX323MSD, YX328, and YX330 YX322, YX324 through YX326, YX329, YX331 VBLKDM:

VBLKDP:

through YX333, YX363, and VHBLKDP

YX322, YX322RE, YX324 through YX326, YX326RE, SBLKEA:

YX329, YX329RE, YX331 through YX333, and

YX363

SBLKEU: YX323, YX323MS, YX323MSD, YX328, and YX330

#### TABLES:

Analytical Results with Qualifications

1B: Data Qualifier Definitions for Organic Data

Review

Volatiles and Semivolatiles: Continuing 2:

Calibrations

### TPO ACTION:

None.

### TPO ATTENTION:

(1) Several volatile results are qualified as nondetected and estimated (U,J) due to contamination in the storage blank. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results are estimated (J) due to low internal standard areas.

RE-Reanalysis; MS-Matrix Spike; MSD-Matrix Spike Duplicate; VHBLK-Storage Blank 97-02-10-HDB-01/25218M01.RPT

#### SAMPLING ISSUES:

The detected result for di-n-butylphthalate in sample YX323 is qualified as nondetected and estimated (U,J) due to contamination in equipment blank YX330. Di-n-butylphthalate was found in equipment blank YX330 at a concentration of 0.5  $\mu$ g/L, which is less than the CRQL of 10  $\mu$ g/L.

#### ADDITIONAL COMMENTS:

A temperature of 10°C was measured in the cooler containing samples YX324, YX326, YX329, YX331, and YX332, which were received at the laboratory on December 13, 1996. This temperature exceeds the 4°C  $\pm$ 2°C sample preservation criterion.

No Tentatively Identified Compounds (TICs) were found in samples YX323, YX325, YX326, YX329, YX331 through YX333, and YX363 for the volatile fraction. The TICs found in the remaining samples for the volatile fraction are reported on the Form 1Es. The TICs found in all of the samples for the semivolatile fraction are reported on the Form 1Fs and in the sample delivery group (SDG) narrative included in this report. The user should note that the SDG narrative summarizes TICs which are alkanes.

All method requirements specified in the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, have been met.

BNA

This report was prepared according to the SOW and the document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

### II. Validation Summary

•	Acceptable/	Comment	Acceptable/	Comment
HOLDING TIMES GC/MS TUNE CALIBRATIONS FIELD QC LABORATORY BLANKS SURROGATES MATRIX SPIKE/DUPLICATES INTERNAL STANDARDS COMPOUND IDENTIFICATION COMPOUND QUANTITATION SYSTEM PERFORMANCE	[YES]	[ ] [D] [B] [B] [ ] [ ] [G]	[YES] [YES] [NO] [NO] [YES] [YES] [YES] [NO] [YES] [YES]	[ ] [C,D] [B] [B] [F] [F] [G]
	- <del>-</del>		• •	

VOA

N/A = Not Applicable

### III. Validity and Comments

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.
  - All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

# LOCKHEEN MARTIN

- B. The following detected results are qualified as mondetected and estimated due to laboratory, equipment, and field blank contamination. The results are flagged "U,J" in Table 1A.
  - Methylene chloride in volatile samples YX322, YX324 through YX326, YX328, YX329, and YX363
  - Di-n-bytylphthalate in semivolatile sample YX323

Methylene chloride was found in the storage blank, equipment blanks YX332 and YX333, and field blank YX331. Di-n-butylphthalate was found in equipment blank YX330. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although bis(2-ethylhexylphthalate) was found in equipment blank YX330 at a concentration of 1  $\mu$ g/L and di-n-octylphthalate in method blank SBLKEU at a concentration of 0.5  $\mu$ g/L, no data are qualified because these analytes were not found in any of the associated semivolatile samples.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will also be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field quality control (QC) problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.

- C. The quantitation limits for the following semivolatile analytes are estimated due to large percent relative standard deviations (%RSDs) in the initial calibration. The results are flagged "J" in Table 1A.
  - 2,4-Dinitrophenol and 4-nitroaniline in samples YX323, YX328, and YX330

Percent RSDs of 31.6 and 33.1 were observed for 2,4-dinitrophenol and 4-nitroaniline, respectively, in the initial calibration

performed January 7, 1997. These values exceed the ≤30.0% QC advisory validation criterion.

The initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

- D. The detected result and quantitation limits for the following analytes are estimated due to large percent differences (%Ds) in the continuing calibrations. The results are flagged "J" in Table 1A.
  - trans-1,3-Dichloropropene in volatile samples YX322, YX324 through YX326, YX329, YX331 through YX333, YX363, method blank VBLKDP, and storage blank VHBLKDP
  - Pyrene and di-n-octylphthalate in semivolatile samples YX322, YX325, YX329, YX333, and YX363

Percent differences exceeding the  $\pm 25.0$ % QC advisory validation criterion were observed for the analytes listed above in the continuing calibrations performed December 17 and 31, 1996 (see Table 2).

The continuing calibration checks the instrument performance daily and produces the relative response factors for target analytes that are used for quantitation.

- E. The detected results and quantitation limits for the following semivolatile analytes are estimated due to low internal standard areas. The results are flagged "J" in Table 1A.
  - 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-bromophenyl phenyl ether, hexachlorobenzene, pentachlorophenol, phenanthrene, anthracene, carbazole, di-n-butylphthalate, fluoranthene, pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, and bis(2-ethylhexyl)phthalate in samples YX322 and YX326
  - Di-n-octylphthalate, benzo(b) fluoranthene, benzo(k) fluoranthene, benzo(a) pyrene, indeno(1,2,3-cd) pyrene, dibenz(a,h) anthracene, and benzo(g,h,i) perylene in samples YX322, YX326, and YX329

The internal standard areas for the samples listed above fell below the QC advisory criterion, as shown below.

<u>Sample</u>	Internal Standard	Area	OC Limits
YX322	Phenanthrene-d <sub>10</sub>	47900	49372-197486
	Chrysene-d <sub>12</sub>	16882	18020-72082
	Perylene-d <sub>12</sub>	9880	13708-54830
YX329	Perylene-d <sub>12</sub>	13527	13708-54830
YX326	Phenanthrene-d <sub>10</sub>	35633	41344-165374
	Chrysene-d <sub>12</sub>	10019	12550-50198
	Perylene-d <sub>12</sub>	6252	7692-30768

The detected results and quantitation limits for the analytes listed above are considered quantitatively questionable. Where the results are nondetected, false negatives may exist.

Samples YX322, YX326, and YX329 were reanalyzed due to the low internal standard areas in accordance with SOW requirements. The results from the reanalysis of sample YX322 are presented in Table

1A in order to minimize the number of qualified data points. The results from the original analysis of sample YX326 and the reanalysis of sample YX329 are presented in Table 1A because higher area counts were obtained in those analyses.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

F. The matrix spike and matrix spike duplicate results for 4-nitrophenol and pentachlorophenol in semivolatile QC samples YX323MS and YX323MSD did not meet the criteria for accuracy specified in the SOW. The percent recoveries are presented below.

<u>Analyte</u>	YX323MS %Recovery	YX323MSD *Recovery	QC limits *Recovery
4-Nitrophenol	83	101	10-80
Pentachlorophenol	112	112	9-103

The results obtained may indicate poor laboratory technique, or matrix effects which may interfere with accurate analysis. Since these recoveries are above the QC limits and the sample results for these analytes are nondetected, no adverse effect on the quality of the data is expected.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

- G. Although not detected in any associated blanks, acetone and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes listed below may be artifacts.
  - Acetone in volatile samples YX322, YX323, and YX329
  - Diethylphthalate in semivolatile samples YX322 and YX324
  - Di-n-butylphthalate in semivolatile samples YX322, YX324 through YX326, YX328, and YX363
  - bis(2-Ethylhexyl)phthalate in semivolatile samples YX324 through YX326, YX328, YX329, and YX363

Low Level Groundwater

Samples for Volatiles

# ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25218 Memo #01

Site: Victoria Golf Course

American Technical & Analytical Services (ATAS)

Lab.:

Reviewer: Dina David-Bailey, ESAT/Lockheed

February 10, 1997 Date:

Concentration in µg/L

Station Location Sample I.D. Date of Collection				GW-2 YX32 12/9/	23		GW-3 YX32 12/11/	4 B	G	GW-4 YX32 12/12/	5 B	G .	GW-5 YX32 12/11	26 D	1
Volatile Compound	Result	Va	Com	Result	Va	Com	Result	Va	Com	Result	Va	l Com	Result	Va	Com
Chloromethane	10 U	J		10 0	J ·		· 10 U			10 U			10 U	J	
Bromomethane	10 t	J		10 T	J		10 U			10 U			10 T	J	
Vinyl chloride	25			10 U	J		10 U			10 U	1		10 T	J	
Chloroethane	10 t	IJ		10 t	1		10 U			10 U			10 T	J	
Methylene chloride	H t	1	В	10-0	<b>y</b>		10-U	j	-B	12-U	-J-	В-	26-I	J J	-B
Acetone	11		G	2 1	. J	AG	10 U			10 U			10 <b>t</b>	J	
Carbon disulfide	10 U	J		10 U	J		10 U			10 U			10 U	J ·	
1,1-Dichloroethene	10 U	J		10 t	J		10 U			10 U			10 U	J	
l,l-Dichloroethane	8, Į	J	A	10 U	J		· 10 U	3		10 U			. 10 U	J	
2-Dichloroethene (total)	48			10 t	1		3 L	J	A	10 U			10 U	1	
Chloroform	10 U	J		10 U	J		10 U			10 U			10 U	ן	
1,2-Dichloroethane	78			10 L	1		10 U			10 U			10 T	<b>j</b>	
2-Butanone	10 U	J		10 U	J		10 U			10 U			10 U	J	
1,1,1-Trichloroethane	10 U	ı		10 t	J		10 U			10 U			10 U	J	
Carbon tetrachloride	10 U	7		10 U	3		10 U			10 U			10 U	J	
Bromodichloromethane	10 U	ı		10 T	J		10 U			10 U			10 U	j l	
1,2-Dichloropropane	10 U	Ī		10 U	J		10 U			10 U			10 U	J	
cis-1,3-Dichloropropene	10 U	ı		10 t	ı		10 U			10 U			10 U	ıl 💮	
Trichloroethene	13			10 L	J		10 U			10 U			10 U	J	
Dibromochloromethane	10 U	İ		10 T	Į.		10 U			10 U			10 U	1	
1,1,2-Trichloroethane	10 U	ſ		10 U	J		10 U	.,,,,,,,		10 U			10 U	J	Market and a second
Benzene	10 U			10 T	1		10 U			10 U			10 U	j	
rans-1,3-Dichloropropene	10 U	J	D	10 U	1		10 U	J	D	10 U	J	D	10 L	representation of	D
Bromoform	10 U	ı		10 L			10 U			10 U			10 t	ıl .	
I-Methyl-2-pentanone	10 U	1		10 U			10 U			10 U	100000000		10 L	400000	
-Hexanone	10 U			10 U			10 U			10 U			10 t	a de la compansión de l	
Tetrachloroethene	10 U			10 U			10 U	04040-0-0004		10 U	10000000	1000000000000	10 U	90000000	9000000000
1,1,2,2-Tetrachloroethane	10 U			10 t	. Lancación		10 U			10 U			10 T	أمجيجها	
Coluene	بار10	4		10 U	100000	10000000000	10 U	10000000		10 U	00000000		10 U	445555555	
hlorobenzene C 3	10			10 U			10 U			10 U			10 U		
Ethylbenzene	10 U	1000000	000000000000	10 U	participation of	NO 1000 000 000 000.	10 U	0000000	(00000000000000000000000000000000000000	10 U		000000000000	10 U		
Styrene	10 U	1		10 U	1		10 U			10 U			10 U		
Kylene (total)	10 U			10 U	Parkerson.		10 U			10 U			10 U	4000000	
· · · · · · · · · · · · · · · · · · ·										10 0			10 (	1	
	000000000000000000000000000000000000000	10000000	0.6000000000000000000000000000000000000			100,000,000,000				•	999336				
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Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

Low Level Groundwater

Samples for Volatiles

# ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25218 Memo #01

Site: Victoria Golf Course

American Technical & Analytical Services (ATAS) Lab.:

Reviewer: Dina David-Bailey, ESAT/Lockheed  $^{\sim}$ 

February 10, 1997 Date:

Concentration in µg/L

Station I anation	GW-9	,		GW-1	Λ 1					C111					
Station Location							GW-1		_	GW-1			GW-1		_
Sample I.D.	YX32			YX32			YX33		B	YX33		В	YX33		3
Date of Collection	12/10/	,		12/11		l Com	12/9/9		با م	12/10			12/10	_	
Volatile Compound	Result		Com	Result	+	Com	Result		l Com	Result	<del></del>	l Com	Result	_	Com
Chloromethane	10 U 10 U		liensense.	10 U			10 U			10 T			10 t		ua diffa
Bromomethane Vinyl chloride	10 U	4.00000	•		1			4		10 t			10 t	a post and	
Chloroethane	10 U	1	A	23 10 t		888888888	10 U		3 2000000000000000000000000000000000000	10 U	salaanaa		10 U		14633653
Methylene chloride	10 U	40000000	В	10 C		В	10 U			10 t		В	10 t	Spanner.	
Acetone	10 U	A	D	3 1	dan .	AG	10 U			14 10 t		В	5 I		AB
Carbon disulfide	10 U	******		10 t	4	AU	10 U	4		10 t	or to see o		10 C	er conserve	
1.1-Dichloroethene	10 U			10 t	a anno an		10 U			10 t	[		10 t		
1,1-Dichloroethane	10 U	4000000		10 U	decension.		10 U	1000000	3000000000	10 t	6 999.99		10 t	s processor.	
1,2-Dichloroethene (total)	5 L	Accessor	A	72			10 U	lanara.	1	10 (			10 t	damer	00000000
Chloroform	10 U	generation)		10 L	riessesses Ti		10 U	*******		10 t	A 0000000		10 C	crosses.	
1.2-Dichloroethane	10 U	4		4 L		Α	10 U			10 t			10 t		
2-Butanone	10 U		energiago.	10 U	derener.		10 U		8   0.0000000000000000000000000000000000	10 L	opsome		10 C	Carbonnes de	
1,1,1-Trichloroethane	10 U			10 L			10 U			10 U	e estate		10 U		
Carbon tetrachloride	10 U	position		10 U	a sananan	10000000000	10 U	1888888		10 U	episonia		10 t	ug verenene	
Bromodichloromethane	10 U			10 U	danne.		10 U			10 t			10 t		
1,2-Dichloropropane	10 U	10000000	50000000000	10 U	2000000	10000000000	10 U	Processor.	100000000000000000000000000000000000000	10 U	200222		10 L	3 6666666	90000000
cis-1,3-Dichloropropene	10 U	1		10 U			10 U	arrest of		10 t			10 t		
Trichloroethene	16			27		**********	10 U	000000		10 U	900000	0000000000	10 U		
Dibromochloromethane	10 U			10 U			10 U			10 U			10 U		
1,1,2-Trichloroethane	10 U			10 U			10 U			10 U		300000000000	10 U	4	1000000000
Benzene	10 U			10 U			10 U			10 U	demand		10 U	deserve.	
trans-1,3-Dichloropropene	10 U		*********	10 U	J	D	10 U	ransana.		10 U		D	10 U	10000000	D
Bromoform	10 U			10 U			10 U			10 U			10 U		
4-Methyl-2-pentanone	10 U			10 U			10 U			10 U			10 U	1000000	19000000000
2-Hexanone	10 U			10 U			10 U			10 U			10 U	d	
Tetrachloroethene	10 U			4_L	J	Α	10 U	,,,,,,,,		10 U	ī		10 U		r-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
1,1,2,2-Tetrachloroethane	10 U			10 U			10 U			10 U	ı		10 U		
Toluene	10 U			10 U			10 U			10 U	1		10 U		
Chlorobenzene	10 U			13			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U	1		10 U		
Styrene	10 U			10 U			10 U			10 U			10 U		
Xylene (total)	10 U			10 U			10 U			10 U	1		10 U	20000000	Arvarian and a
				6						······································		l annual transition		***************************************	veres00000
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Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit .

N/A-Not Applicable, NA-Not Analyzed

Low Level Groundwater Samples for Volatiles

# ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25218 Memo #01

Site: Victoria Golf Course

Lab.:

American Technical & Analytical Services (ATAS)

Reviewer: Dina David-Bailey, ESAT/Lockheed

February 10, 1997 Date:

Concentration in  $\mu g/L$ 

Station Location	GW-1	4-1		GW-2	8-1		Metho	d Bl	ank	Metho	d Bl	ank	Storag	ge Bl	lank
Sample I.D.	YX33	3 E	В	YX36	3 D	1	VBLK	ЮM	[	VBLK	DР		VHBI	LKD	P
Date of Collection	12/11/	/96		12/11/	/96										
Volatile Compound	Result		Com	Result		l Com	Result	Val	Com	Result	Val	Com	Result	Va	Con
Chloromethane	10 U		Maria assassas	10 C	december		10 U	ŗ		10 U	ſ		10 U	J	
Bromomethane	10 U	a produce		10 t	a parame		10 U			10 U			10 t	J .	
Vinyl chloride	10 U	eden nen	s Incheuphono	10 C	decesso	,,,,,,,,,,,,,,,,,	10 U	d		10 U	1		10 U	J	
Chloroethane	10 U	1		10 L	4		10 U	400000		10 U	100000000		10 U	J	
Methylene chloride	9_L	J	AB-	13 L	T	<b>B</b>	10_U			10-U	000000		9-1	1	AB*
Acetone	10 U	200000000		10 t	area and a second		10 U	quanina		10 U			10 C	1	
Carbon disulfide	10 U	. 1		10 U	Acres 1	(   00000000000	10 U			10 U	1		10 L	J	
1,1-Dichloroethene	10 U	garan.		10 U			10 U			10 U			10 U	1	
1,1-Dichloroethane	10 U	december 1	2.0000000000	10 U	A	0.0000000000000000000000000000000000000	10 U			10 U			10 L	4	
1,2-Dichloroethene (total)	10 U	a arresta		10 U			10 U	*******		10 U			10 L	,	
Chloroform	10 U	Janear	0.0000000000000000000000000000000000000	10 U	danara.	20000000000	10 U	bereite.	•	10 U			, 10 U		
2-Dichloroethane	10 U	outerna.		10 U	100000		10 U	9000000		10 U			10 U	1	
2-Butanone	10 U	december.	000000000000000000000000000000000000000	10 U	danasas	900000000000	10 U		Bassasannan	10 U	332555		10 U	J	
,1,1-Trichloroethane	10 U	garana.		10 U	******		10 U	******		10 U	0000000		10 U	I)	
Carbon tetrachloride	10 U	days and		10 U	200200	5-00000000000	10 U			10 U			10 U	J	<u> </u>
Bromodichloromethane	10 U	4000000		10 U	2000000		10 U			10 U			10 U		
,2-Dichloropropane	10 U	A	-00000000000	10 U			10 U			10 U			. 10 U	r]	
cis-1,3-Dichloropropene	10 U	4000000		10 U	position.		10 U	*******		10 U			10 U	1	
Trichloroethene	10 U	diamento.	00000000000	.10 U			10 U			10 U			10 U	<u> </u>	ļ
Dibromochloromethane	10 U	\$2000000		10 U	100000		10 U	Process of		10 U			10 U		
,1,2-Trichloroethane	10 U	accessor.	200005000000	10 U	Lucian		10 U			10 U			10 U	1	
Benzene	10 U	Accessor		10 U			10 U	2000000		10 U			10 U		
rans-1,3-Dichloropropene	10-U		D-	10-U		<b>D</b> ==	<del>10 U</del>			10 U	J	D	10€	J.,	Ď-
Bromoform	10 U	2000000		10 U			10 U			10 U			10 U		
-Methyl-2-pentanone	10 U		200000000000000000000000000000000000000	10 U	*,*,*,*,*,*,*	ļl	10 U			10 U			10 U		
-Hexanone	10 U	Processor.		10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U	anners.	20000000000	10 U	1		10 U			10 U	]		10 U		
,1,2,2-Tetrachloroethane	10 U			10 U			10 U			10 U			10 U		
Toluene	10 U			10 U			10 U			10 U			10 U		
Chlorobenzene	10 U			10 U			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U			10 U		[
ityrene	10 U			10 U	Personal Land		10 U			10 U			10 U		
(ylene (total)	10 U			10 U			10 U			10 U			10 U		
	55555555555555555555555	coordee	000000000000											e a a sistefal	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

**CRQL-Contract Required Quantitation Limit** 

N/A-Not Applicable, NA-Not Analyzed

Low Level Groundwater

Samples for Volatiles

# ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25218 Memo #01

Victoria Golf Course Site:

Lab : American Technical & Analytical Services (ATAS)

Reviewer: Dina David-Bailey, ESAT/Lockheed

February 10, 1997

Concentration in µg/L

,	-														
Sample I.D.	CRQL														
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Va	l Com	Result	Val	Com	Result	Val	Com
Chloromethane	10														
Bromomethane	10														
Vinyl chloride	10					1									
Chloroethane	10														
Methylene chloride	10														
Acetone	10														
Carbon disulfide	10		.,		ļ										
1,1-Dichloroethene	10														
1,1-Dichloroethane	10				ļ		ļ								
1,2-Dichloroethene (total)	10														
Chloroform	10					l				,					
1,2-Dichloroethane	10														
2-Butanone	10														
1,1,1-Trichloroethane	10														
Carbon tetrachloride	10				ļ										
Bromodichloromethane	10														
1,2-Dichloropropane	10										,				
cis-1,3-Dichloropropene	10														
Trichloroethene	10		******						İ						
Dibromochloromethane	10														
1,1,2-Trichloroethane	10														
Benzene	10														
trans-1,3-Dichloropropene	10														
Bromoform	10														
4-Methyl-2-pentanone	10														
2-Hexanone	10														
Tetrachloroethene	10												************************		
1,1,2,2-Tetrachloroethane	10														
Toluene	10														**********
Chlorobenzene	10														
Ethylbenzene	10											**********			nnnevenes
Styrene	10														
Xylene (total)	10								`			varantanana.		•	4000000000
											ersterned b		***************************************	100000000	00000000000
							\				arressort.	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		(00000000)	404/4035363
					2000000			0000000	-veccooddddd		adoddd	200000000000000000000000000000000000000		14444686	austricită

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

Concentration in µg/L

TABLE 1A

Case No.: 25218 Memo #01

Site: Victoria Golf Course

victoria Gori Course

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Analysis Type: Low Level Groundwater Samples

for Semivolatiles

			· ·								
Station Location	GW-1	-1	GW-	2	GW-3-	-1	GW-4	-1	GW-5-1	GW-9	GW-10-1
Sample I.D.	YX32	2	YX3	23	YX324	4 BG	YX32	5 BG	YX326 D1	YX328	YX329
Date of Collection	12/13/	96	12/9/	96	12/11/	96	12/12/	96	12/11/96	12/10/96	12/11/96
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result Val Co	n Result Val Co	m Result Val Com
Phenol	10 U		10 U	J	10 U		10 U		10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U		10 (	J	10 U		10 U		10 U	10 U	10 U
2-Chlorophenol	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
1,3-Dichlorobenzene	10 U		10 t	J	10 U		10 U		10 U	10 U	10 U
1,4-Dichlorobenzene	5 L	J A	10 (	ן וי	10 U		10 U		10 U	10 U	10 U
1,2-Dichlorobenzene	2 L	J A	10 (	J	10 U		10 U		10 U	10 U	10 U
2-Methylphenol	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U		10 t		10 U		10 U		10 U	10 U	10 U
4-Methylphenol	10 U		10 U	J	10 U		10 U		10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
Hexachloroethane	10 U		10 t	J	10 U		10 U		10 U	10 U	10 U
Nitrobenzene	10 U		10 t	J	10 U		10 U		10 U	10 U	10 U
Isophorone	10 U		. 10 T	ן	10 U		10 U	, `	10 U	10 U	10 U
2-Nitrophenol	10 U		10 t	J	10 U		10 U		10 U	10 U	10 U
2,4-Dimethylphenol	10 U		10 U	ון	10 U		10 U		10 U	· 10 U	10 U
bis(2-Chloroethoxy)methane	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
2,4-Dichlorophenol	10 U		10 T		10 U		10 U		10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
Naphthalene	10 U		10 T		10 Ù		10 U	N.	10 U	10 U	10 U
4-Chloroaniline	10 U		10 (	J	10 U		10 U		10 U	10 U	10 U
Hexachlorobutadiene	10 U		10 T	J	10 U		10 U		10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U		10 l	기	10 U		10 U		10 U	10 U	10 U
2-Methylnaphthalene	10 U		10 U	J	10 U		10 U		10 U	. 10 U	10 U
Hexachlorocyclopentadiene	10 U		10 U	J	10 U		10 U		10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U		10 U	J ·	10 U		` 10 U		10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U		25 l	J	25 U		25 U		25 U	25 U	25 U
2-Chloronaphthalene	10 U		10 U	J	10 U		10 U		10 U	10 U	10 U
2-Nitroaniline	25 U		25 t	ar parametria de la secución de	25 U		25 U		25 U	25 U	25 U
Dimethylphthalate	10 U	M. Maria deliberation	10 U	J	10 U		10 U		10 U	10 U	10 U
Acenaphthylene	10 U		10 U	ال	10 U		10 U		10 U	10 U	10 U
2,6-Dinitrotoluene	10 U		10 U	J	10 U		10 U		10 U	10 U	10 U
3-Nitroaniline	25 U		25 U	ן	25 U		25 U		25 U	25 U	25 U

Station Location	GW-1	-1	GW	-2	GW-3	3-1	GW-4	-1	GW-5	-1	GW-	9	GW-1	0-1
Sample I.D.	YX32	2 .	YX3	323	YX32	4 BG	YX32:	5 BG	YX32	6 D1	YX32		YX32	
Date of Collection	12/13/	96	12/9	/96	12/11		12/12/	96	12/11		12/10		12/11/	
Semivolatile Compound	Result	Val Co	n Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Con
Acenaphthene	10 U		10	U	10 L	7	10 U		10 U	1.	10 U	J	10 U	
2,4-Dinitrophenol	25 U		25	U J C	25 L	1	25 U		25 U		25 U	i i c	25 U	
4-Nitrophenol	25 U	<b></b>	. 25	U F	25 U	J I	25 U	-	25 U		25 U	J	<b>25</b> U	
Dibenzofuran	10 U		10	ul	10 L	1	10 U		10 U		10 U	j l	10 U	
2,4-Dinitrotoluene	10 U		10	U	10 U	ŗ .	10 U		10 U		10 U	J	10 U	
Diethylphthalate	3 L	J A	10	U	0.6 L	J AG	10 U		10 U		10 U	j i	10 U	1
4-Chlorophenyl phenyl ether	10 U		10	U	10 U	r	10 U		10 U		10 U	J	10 U	
Fluorene	10 U		10	U	10 L	1	10 U		10 U		10 t	j i	10 U	
1-Nitroaniline	25 U		25	n l C	25 U	ı l	25 U		25 U		. 25 L	J C	<b>25</b> U	
4,6-Dinitro-2-methylphenol	25 U	J E	25	U	25 L		25 U		25 U	J E	25 L	1	25 U	
N-Nitrosodiphenylamine	10 U	J E	10	U	10 U		10 U		10 U	J E	10 U	j l	10 U	
4-Bromophenyl phenyl ether	10 U	2000000	10	U	10 U		10 U		10 U	J E	10 t	r	10 U	
Hexachlorobenzene .	10 U	J E	10	1. 1	10 U		10 U		10 U	J E	10 L	J I	10 U	
Pentachlorophenol	25 U	J E	25	U F	25 U		25 U		25 U	J E	25 L	i l	25 U	
Phenanthrene	10 U		10	U	10 U		10 U		10 U	J E	10 L		10 U	
Anthracene	10 U	J E	10	U	10 U		10 U		10 U	J E	10 U	1   1	10 U	
Carbazole	10 U	J E	10	U	10 U	1	10 U		10 U	J E	' 10 L		10 U	
Di-n-butylphthalate	7 L	J AE	G 10	U J B	57	G	21	G	2 L	J AEG	1 L	J AG	10 U	
Fluoranthene	10 U	large a la como	10		10 U		10 U		10 U	J E	10 U		10 U	
Pyrene	10 U	J DE	10	U	10 U		10 U	J D	10 U	) E	10 L		10 U	J D
Butylbenzylphthalate	10 U		10	U	10 U		10 U		10 U	J E	10 U		10 U	
3,3'-Dichlorobenzidine	10 U	J E	10	U	10 U		10 U		10 U	J E	10 U		10 U	
Benzo(a)anthracene	10 U		10	U ·	10 U		10 U		10 U	J E	10 U		10 U	annanan kasar asar. a
Chrysene	10 U	2000120 000000	10	U	10 U		10 U		10 U	J E	10 U		10 U	
ois(2-Ethylhexyl)phthalate	10 U		10	U	2 L	J AG	1 L	J AG	4 L	J AEG	16	G	6 L	J AG
Di-n-octylphthalate	10 U		10	U	10 U	1   1	10 U	J D	10 U	J E	10 U		10 U	J DE
Benzo(b)fluoranthene	10 U	1 7	10		10 U		10 U		10 U	J E	10 U		999999999999999999999	0000000 00000000000
Benzo(k)fluoranthene	10 U	J E	10	U	10°U		10 U		10 U	J E	10 U		10 U	J E
Benzo(a)pyrene	10 U	J E	10	ט	10 U		10 U		10 U	J E	10 U		***************************************	www.com
Indeno(1,2,3-cd)pyrene	10 U	J E	10	u	10 U		10 U		10 U	J E	10 U		10 U	J E
Dibenz(a,h)anthracene	10 U	J E	10	U	10 U		10 U		10 U	J E	10 U		10 U	J E
Benzo(g,h,i)perylene	10 U	J E	10	ul l	10 U		10 U		10 U	J E	10 U		10 U	J E

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

TABLE 1A

Case No.: 25218 Memo #01 Site:

Victoria Golf Course

American Technical & Analytical Services (ATAS) Lab.:

Reviewer: Dina David-Bailey, ESAT/Lockheed

February 10, 1997 Date:

Concentration in µg/L

Analysis Type:

Low Level Groundwater Samples

for Semivolatiles

Station Location	GW-1	-		12-1	GW-1		GW-1			GW-2			od Blank		od Blank
Sample I.D.	YX33			31 FB	YX33		YX33			YX36		SBLK	EA	SBLK	EU
Date of Collection	12/9/9		12/1		12/10/		12/11/			12/11	· · · · · · · · · · · · · · · · · · ·				
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val (	Com	Result	Val Com	Result	Val Com	Result	Val Com
Phenol	10 U		10		10 U	1010000 10100000000	10 U	Ł I	5050155000	10 U	.1	10 U	daysaadays aas aad	10 U	
bis(2-Chloroethyl)ether	10 U		10	ang rangga processors	10 U		10 U	40000000400		10 U	postored received	10 L		10 U	
2-Chlorophenol	10 U	500000 0000000000	10	and an analysis becomes an	10 U	282400 2000000000	10 U	4		10 U		10 U		10 U	l
1,3-Dichlorobenzene	10 U		10	oogoooogoooooo	10 U		10 U	Assessment from		10 U		10 U	as waxaacaaaaaaa	10 U	anner bereit
1,4-Dichlorobenzene	10 U	lassass bassassass	10		10 U	0040000-0010000000	10 U	descender.		10 U	dawaran haranan	10 U		10 U	
1,2-Dichlorobenzene	10 U		10	401000000000000000000000000000000000000	10 U		10 U	0000000		10 U		10 U	6 200 000 000 000 000 000 000 000 000 00	10 U	
2-Methylphenol	10 U		10	5. h h	, 10 U		10 U		50000000000	10 U		10 U	december over a d	10 U	
2,2'-oxybis(1-Chloropropane)	10 U		10	004000000000000000000000000000000000000	10 U		10 U			10 U		10 U		10 U	
4-Methylphenol	10 U		10		10 U		10 U			10 U		10 U	l l	10 U	
N-Nitroso-di-n-propylamine	10 U		10	404 200 200 200 200 200 200 200 200 200	10 U		10 U			10 U		10 U		10 U	
Hexachloroethane	10 U	000000000000000000000000000000000000000	10	Salvana kana wa	10 U		10 U	l		10 U		10 U		10 U	
Nitrobenzene	10 U		10	539 200000 00000000000	10 U		10 U			10 U		10 U		10 U	
Isophorone	10 U	acasas iso canasas ar	10		10 U		10 U			10 U		10 U		10 U	.
2-Nitrophenol	10 U		10	U U	10 U		10 U			10 U		10 U		10 U	
2,4-Dimethylphenol	10 U		10	ט	10 U		10 U			10 U		10 U		10 U	
bis(2-Chloroethoxy)methane	10 U		10	u	10 U		10 U			10 U		10 U		10 U	
2,4-Dichlorophenol	10 U	l	10	U	10 U		10 U			10 U		10 U		10 U	
1,2,4-Trichlorobenzene	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
Naphthalene	10 U		10	U.	10 U		- 10 U			. 10 U		10 U		10 U	
4-Chloroaniline	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
Hexachlorobutadiene	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
4-Chloro-3-methylphenol	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
2-Methylnaphthalene	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
Hexachlorocyclopentadiene	10 U		10	U	10 U		10 U			10 U		10 U		10 U	
2,4,6-Trichlorophenol	10 U		10	U	10 U	,	10 U		,	10 U		10 U	in the second	10 U	
2,4,5-Trichlorophenol	25 U		25	וט	25 U		25 U			25 U		25 U		25 U	
2-Chloronaphthalene	10 U		10	ן וי	10 U		10 U			10 U		10 U		10 U	
2-Nitroaniline	25 U		25	υ	25 U		25 U			25 U		25 U		25 U	
Dimethylphthalate	10 U		10	ן וי	10 U		10 U			10 U	to the second second	10 U		10 U	
Acenaphthylene	10 U		10	ا   ا <u>ا</u>	10 U		10 U			10 U		10 U		10 U	
2,6-Dinitrotoluene	10 Ü		10	ן ט	10 U	aan sa sa Indoor sa sa 1976)	10 U	A.COCCO (100)	v	10 U		10 U	onn, ar knopfopshasi (	10 U	
3-Nitroaniline	25 U		25 (	ا ار	25 U		25 U			25 U		25 U		25 U	

Station Location	GW-1	1	GW-1	2-1	GW-1	3-1	GW-14	-1	GW-2	28-1	Meth	od Blank	Metho	od Blank
Sample I.D.	YX33	0 EB	YX33	1 FB	YX33	2 EB	YX333	EB	YX36	63 D1	SBL	KEA	SBLK	ŒU
Date of Collection	12/9/9	6	12/10	/96	12/10	/96	12/11/9	96	12/11	/96				
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Con
Acenaphthene	10 U		10 U		10 U		10 U		10 U	J	10 U	ı l	10 U	,
2,4-Dinitrophenol	25 U	J C	25 L	1	25 U		25 U		25 l	<b>J</b>	25 L	j	25 U	di di
4-Nitrophenol	25 U		25 U	J	25 U		25 U		25 U	j	25 L	j   .	25 U	
Dibenzofuran	10 U		10 L		10 U		10 U		10 L	J	10 t	j	10 U	
2,4-Dinitrotoluene	10 U		10 U	J T	10 U		10 U		10 U	J	10 L	J	10 U	1
Diethylphthalate	10 U		10 L		10 U		10 U		10 T	j	10 L	j l	10 U	1
4-Chlorophenyl phenyl ether	10 U		10 U	J	10 U		10 U		10 U	J	10 U	J	10 U	
Fluorene	10 U		10 L	1	10 U		10 U		10 T	<b>J</b>	10 L	ıl l	10 U	l l
4-Nitroaniline	25 U	J C	25 U		25 U		25 U		25 U	J	25 L	J	25 U	
4,6-Dinitro-2-methylphenol	25 U		25 L	1	25 U		25 U		25 U	J	25 L	j	25 U	
N-Nitrosodiphenylamine	10 U		10 U	J	10 U		10 U		10 U	J	10 U	j	10 U	
4-Bromophenyl phenyl ether	10 U		10 L	1	10 U		10 U		10 T	J	10 L	j	10 U	
Hexachlorobenzene	10 U		10 U	ı l	10 U		. 10 U		10 U	J · ]	10 L	J	10 U	
Pentachlorophenol	25 U		25 L	I I	25 U		25 U		25 U	j	25 L	1	25 U	
Phenanthrene	10 U		10 U		10 U		10 U		10 U	J	10 U	] .	10 U	
Anthracene	10 U		10 L	1	10 U		10 U		10 L	j	10 U	j	10 U	
Carbazole	10 U		10 U	J	10 U		10 U	į	10 U	J	· 10 U	J	10 U	
Di-n-butylphthalate	0.5 L	J AB	10 L		10 U		10 U		2 1	J AG	10 U	j i	10 U	
Fluoranthene	10 U		10 U	J .	10 U		10 U		10 U	J	10 U	,	10 U	
Pyrene	10 U	0000000 (000000000000000000000000000000	10 L	1	10 U		10 U	J D	10 L	J J D	10 L	j l	10 U	
Butylbenzylphthalate	10 U	1 1	10 U	]	10 U		10 U		10 U	J I	10 U		10 U	
3,3'-Dichlorobenzidine	10 U	000000000000000000000000000000000000000	10 T	1	10 U		10 U		10 U	л	10 L	i i	10 U	
Benzo(a)anthracene	10 U		10 U	ŗ	10 U		10 U		10 U	<b>/</b>	10 U	ıl l	10 U	
Chrysene	10 U	passans factorisaciness	10 L		10 U		10 U		10 U	1	10 L	ı I	10 U	
bis(2-Ethylhexyl)phthalate	1 L	J AB	10 U	ıl l	10 U		10 U		3 L	J AG	10 U	ı I	10 U	
Di-n-octylphthalate	10 U		10 L	1	10 U		10 U	J D	10 U	I J D	10 U	1	0.5 L	J AB
Benzo(b)fluoranthene	10 U		10 U		10 U		10 U		10 U	J	10 U		10 U	
Benzo(k)fluoranthene	10 U		10 L		10 U		10 U		10 t	/	10 U	1	10 U	
Benzo(a)pyrene	10 U		10 U		10 U		10 U		10 U	J	10 U	r l	10 U	
Indeno(1,2,3-cd)pyrene	10 U		10 U		10 U		10 U		10 L	1	10 U		10 U	
Dibenz(a,h)anthracene	10 U		10 U	.1	10 U		10 U		10 U	ı I	10 U		10 U	
Benzo(g,h,i)perylene	10 U		10 L		10 U		10 U		10 L	il	10 U	i l	10 U	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

TABLE 1A

Victoria Golf Course Site:

Case No.: 25218 Memo #01

American Technical & Analytical Services (ATAS) Lab.:

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/L

Analysis Type:

Low Level Groundwater Samples

for Semivolatiles

Sample I.D.  Semivolatile Compound Phenol Phenol Dis(2-Chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 2-Methylphenol 2,2'-oxybis(1-Chloropropane) 4-Methylphenol N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene 1sophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol 1,2,4-Trichlorobenzene		Com	Result	Val	l Com	Result	Va	al Com	Result	Va	l Com	Result	Val	Com	Result	Va	Com	Result	Va	Com
Semivolatile Compound Phenol Phenol Dis(2-Chloroethyl)ether 2-Chlorophenol Pl,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 2-Methylphenol Pl-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene Isophorone 2-Nitrophenol 2,4-Dimethylphenol Dis(2-Chloroethoxy)methane 2,4-Dichlorophenol Isi(2-Chlorophenol  Val	Com	Result	Val	Com	Result	Va	ıl Com	Result	Va	l Com		Val	Com	Result	Va	Com	Result	Val	Com	
Phenol   1  bis(2-Chloroethyl)ether   1  2-Chlorophenol   1  1,3-Dichlorobenzene   1  1,4-Dichlorobenzene   1  2-Methylphenol   1  2,2'-oxybis(1-Chloropropane)   1  4-Methylphenol   1  N-Nitroso-di-n-propylamine   1  Hexachloroethane   1  Sophorone   1  2,4-Dimethylphenol   1  bis(2-Chloroethoxy)methane   1  2,4-Dichlorophenol   1		Com	Result	Val	Com	Result	Va	l Com	Result	Va	Com		Val	Com	Result	Va	Com	Result	Val	Com
bis(2-Chloroethyl)ether  2-Chlorophenol  1,3-Dichlorobenzene  1,4-Dichlorobenzene  1,2-Dichlorobenzene  1,2-Dichlorobenzene  2-Methylphenol  2,2'-oxybis(1-Chloropropane)  4-Methylphenol  N-Nitroso-di-n-propylamine  Hexachloroethane  Nitrobenzene  Isophorone  2-Nitrophenol  2,4-Dimethylphenol  bis(2-Chloroethoxy)methane  2,4-Dichlorophenol				-								1	$\top$	<del>  </del>		+	<del> </del>	<del> </del>	+	
2-Chlorophenol   1 1,3-Dichlorobenzene   1 1,4-Dichlorobenzene   1 1,2-Dichlorobenzene   1 1,2-Dichlorobenzene   1 2-Methylphenol   1 2,2'-oxybis(1-Chloropropane)   1 4-Methylphenol   1 N-Nitroso-di-n-propylamine   1 Hexachloroethane   1 Nitrobenzene   1 Isophorone   1 2-Nitrophenol   1 2,4-Dimethylphenol   1 bis(2-Chloroethoxy)methane   1 2,4-Dichlorophenol   1 1				-				96-1988/9599			1		1	1		1	l		1	
1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 2-Methylphenol 2,2'-oxybis(1-Chloropropane) 1-Methylphenol N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene 1-Isophorone 1-Isophorone 2-Nitrophenol 1-Isophorone 1-I				-																
1,4-Dichlorobenzene 1 1,2-Dichlorobenzene 1 2-Methylphenol 1 2,2'-oxybis(1-Chloropropane) 1 4-Methylphenol 1 N-Nitroso-di-n-propylamine 1 Hexachloroethane 1 Isophorone 1 2-Nitrophenol 1 2,4-Dimethylphenol 1 bis(2-Chloroethoxy)methane 1 2,4-Dichlorophenol 1 1 2,4-Dichlorophenol 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	) ) ) )															ar transcen	The transfer of the		190000000	B00000000
1.2-Dichlorobenzene 1 2-Methylphenol 1 2.2'-oxybis(1-Chloropropane) 1 4-Methylphenol 1 N-Nitroso-di-n-propylamine 1 Hexachloroethane 1 Nitrobenzene 1 Isophorone 1 2-Nitrophenol 1 2,4-Dimethylphenol 1 bis(2-Chloroethoxy)methane 1 2,4-Dichlorophenol 1 1 2,4-Dichlorophenol 1 1	) ) )				1															
2-Methylphenol 1 2,2'-oxybis(1-Chloropropane) 1 4-Methylphenol 1 N-Nitroso-di-n-propylamine 1 Hexachloroethane 1 Nitrobenzene 1 Isophorone 1 2-Nitrophenol 1 2,4-Dimethylphenol 1 bis(2-Chloroethoxy)methane 1 2,4-Dichlorophenol 1	) ) )				1												9000000000000	***********	30000000	000000000
2.2'-oxybis(1-Chloropropane)  4-Methylphenol N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene Isophorone 1-2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol	) ) )			er filologisk																
4-Methylphenol   14 N-Nitroso-di-n-propylamine   15 Hexachloroethane   16 Nitrobenzene   16 Isophorone   16 2-Nitrophenol   16 2,4-Dimethylphenol   16 bis(2-Chloroethoxy)methane   16 2,4-Dichlorophenol   16	) )										*************		0,000,0000	400000000000	.00000000000000000000000000000000000000	047-050000	100000000000		1	
N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene Isophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol In	)							1								100				
Hexachloroethane   10   Nitrobenzene   10   Isophorone   10   2-Nitrophenol   10   2,4-Dimethylphenol   10   bis(2-Chloroethoxy)methane   10   2,4-Dichlorophenol   10	200000 300000				APAR AND SOCIO	pa-tanananan00000000000000000000000000000	uoup 06663	A-40-0000000000	<b></b>	000000000	100000000000000000000000000000000000000	paucececci;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	-		44-000000000000000000000000000000000000	540000000	\$146000000000000000000000000000000000000		10000000	40000000000000000000000000000000000000
Nitrobenzene													1							
Isophorone	,								100000000000000000000000000000000000000	0001000000	000000000000000000000000000000000000000	100000000000000000000000000000000000000	0.00000000	200000000000	*	2179999	1000000000000		1010000	200000000000000000000000000000000000000
2-Nitrophenol I 2,4-Dimethylphenol I bis(2-Chloroethoxy)methane I 2,4-Dichlorophenol I	)																			
2,4-Dimethylphenol [1] bis(2-Chloroethoxy)methane [1] 2,4-Dichlorophenol [1]	)				100000000000000000000000000000000000000	M.C.W. 100000000000000000000000000000000000	****			******	000000000000000000000000000000000000000	500000000000000000000000000000000000000	A 000 0000	000000000000000000000000000000000000000		31000000	\$0000000000000000		100000	000000000000000000000000000000000000000
bis(2-Chloroethoxy)methane 11 2,4-Dichlorophenol 11	)																			
2,4-Dichlorophenol 1	)			000000000			SS 53555	50 0000000000			100000000000000000000000000000000000000		A \$5000000			8 1000000	45.000000000		1980	
2,4-Dichlorophenol 1	)															1				
	)			000000000	000000000000000000000000000000000000000	100000000000000000000000000000000000000	550				100000000000000000000000000000000000000	*	AFRESSES			8 666666	8883888888			£9888888
Naphthalene 1	treates protective	0 000 2000000	10000 1000 100 1000 1000 1000 100	00000000	000000000000000000000000000000000000000		000 (0000000	200000000000		200 (2002)			.2 (22.22.22)	300000000					900-000	000000000000000000000000000000000000000
4-Chloroaniline 1																				
Hexachlorobutadiene 10	anian aaaaa	10000000000000		20100000000	194444944949		200	0.0000000000000000000000000000000000000					1 (0000000)				3333333		Beeren)	
4-Chloro-3-methylphenol 10																				
2-Methylnaphthalene 10		1000.000000		******			44 (0000	31.000000000					36555555				200000000			
Hexachlorocyclopentadiene 10																				
2,4,6-Trichlorophenol	9000000			9 1000000	Costa assess								3 333333				300000			
2,4,5-Trichlorophenol 2													less!							
2-Chloronaphthalene 10	anan parame	100400000			pocosionis		sapititis			96) (46) (56)	P0000000000000000000000000000000000000			19888888888						
2-Nitroaniline 2				<b> </b>													000000			1855000000
Dimethylphthalate 10	agaran manan	6666666666			F0 800 30000	4.0000000000000000000000000000000000000							188888							
Acenaphthylene 16							3 8 8 8												1288	
2,6-Dinitrotoluene	45555 554555											-								
3-Nitroaniline 22				J				5   300,000		×						*****	late sui mai		5000.00	98588: 98689

Sample I.D.	CRQL									•											
Semivolatile Compound	Result	Val	Com	Result	Va	Com	Result	Va	Com	Result	Val	Com	Result	Va	Com	Result	Va	Com	Result	Va	l Con
Acenaphthene	10																1		-		1
2,4-Dinitrophenol	25																				
4-Nitrophenol	25					'															
Dibenzofuran	10																				
2,4-Dinitrotoluene	10								l	-		1									
Diethylphthalate	10																		•		
4-Chlorophenyl phenyl ether	10															*******************	.,,,,				
Fluorene	10																				
4-Nitroaniline	25																				1
4,6-Dinitro-2-methylphenol	25																				
N-Nitrosodiphenylamine	10	l																			1
4-Bromophenyl phenyl ether	10																				
Hexachlorobenzene	10								ļ					1							1
Pentachlorophenol	25																				
Phenanthrene	10																				
Anthracene	10																				
Carbazole	10					l															
Di-n-butylphthalate	_10																				
Fluoranthene	10			,																	,,,,,,,,,
Pyrene	10																				
Butylbenzylphthalate	10																				
3,3'-Dichlorobenzidine	10																				
Benzo(a)anthracene	10																				
Chrysene	10																				
ois(2-Ethylhexyl)phthalate	10	l										٠.									
Di-n-octylphthalate	10																				
Benzo(b)fluoranthene	10								[												
Benzo(k)fluoranthene	10																				
Benzo(a)pyrene	10																				2000000000
Indeno(1,2,3-cd)pyrene	10																				
Dibenz(a,h)anthracene	10										-					A A A A A A A A A A A A A A A A A A A				- Proposition	
Benzo(g,h,i)perylene	10										8   B888			1	1000000			1000000		Alesse'	licated

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable



#### TABLE 1B

## DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Page <u>1</u> of <u>1</u>

TABLE 2

Volatiles and Semivolatiles: Continuing Calibrations

Case No.:

25218 Memo #01

Victoria Golf Course

Laboratory: American Technical & Analytical Services (ATAS)

Reviewer:

Dina David-Bailey, ESAT/Lockheed

Date:

February 10, 1997

PERCENT DIFFERENCES

VOLATILES

Analysis date/time:

12-17-96/1035

GC/MS I.D.:

D

**Analyte** 

Cont.

trans-1,3-Dichloropropene

-36.8

ASSOCIATED SAMPLES AND BLANKS

Cont. 12-17-96/1035: YX322, YX324 through YX326, YX329, YX331 through

YX333, YX363, VBLKDP, and VHBLKDP

SEMIVOLATILES

٧D

Analysis date/time:

12-31-96/1411

GC/MS I.D.:

E

**Analyte** 

Cont.

Pyrene

-25.3

Di-n-octylphthalate

-28.4

ASSOCIATED SAMPLES

Cont. 12-31-96/1411: YX322, YX325, YX329, YX333, and YX363

EPA SAMPLE NO.

# VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17713.01

Sample wt/vol: 5.0

(g/mL) ML

Lab File ID: D7876.D

Level: (low/med) LOW

Date Received: 12/14/96

% Moisture: not dec.

Date Analyzed: 12/17/96

GC Column:DB-624 ID: 0.53

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_(uL)

Soil Aliquot Volume: \_\_\_\_(uL)

Number TICs found: 12

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 78-78-4 2. 110-54-3	Butane, 2-methyl-	5.576 8.852	54 6	NJ NJ
3. 96-37-7 4. 565-59-3 5. 1638-26-2 6. 4516-69-2 7. 2613-69-6 8. 34462-28-7	Cyclopentane, methyl- Pentane, 2,3 dimethyl- Cyclopentane, 1,1-dimethyl- Cyclopentane, 1,1,3-trimethy Cyclopentane, 1,2,3-trimethy Cyclopropane, trimethylmethy	12.805	7 17 17 8 6 10	VNJ NJ NJ NJ NJ
9. 110-01-0 10. 4740-00-5 11. 12. <del>1074-17-5</del> 13. <del>95-50-1</del>	Thiophene, tetrahydro- Thiophene, tetrahydro-3-methy Unknown Benzene, 1-methyl-2-propyl- Benzene, 1,2-dichloro-	14.952 16.383 17.119 18.521 18.768	12 22 6 10 5	NJ NJ J NJ NJ
15. 16. 17. 18.				
20. 21. 22. 23. 24.				
25. 26. 27. 28.				
30				

2. Common laboratory contaminant 3., 4., 7., 8. Unknown hydrocarbon 12. and 13. Substituted benzene FORM I VOA-TIC

HOB 1/29/97

OLM03.0

# VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: ATAS, INC.	Contract: 68-D5-0018	1.1.5.2.4
Lab Code: ATAS Case No.: 25218	SAS No.: SDG	No.: YX323
Matrix: (soil/water) WATER	Lab Sample ID:	17703.02
Sample wt/vol: 5.0 (g/mL) ML	Lab File ID:	D7875.D
Level: (low/med) LOW	Date Received:	12/13/96
% Moisture: not dec.	Date Analyzed:	12/17/96
GC Column:DB-624 ID: 0.53 (mm)	Dilution Facto	or: 1.0
Soil Extract Volume:(uL)	Soil Aliquot V	olume:(uL
Number TICs found: 2	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-14-0 2. 110-54-3	Pentane, 3-methyl-	8.432 8.861	38	NJ NJ
3. <del>-96-37-7</del> 4	Cyclopentane, methyl-	9.755	67	ŊJ
5. 6.				
7. 8. 9.				
10.				<del></del>
12. 13.				
15.				
17.				
18. 19. 20.				
21				
23				
25. 26.				
27.				<u> </u>
29.				

Common laboratory contaminant Unknown hydrocarton

FORM I VOA-TIC

HAPS 1/28/97 OLMO3.0

Number TICs found: 1

# VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.

Lab Name: ATAS, INC.	Contract: 68-D5-0018
Lab Code: ATAS Case No.: 25218	SAS No.: SDG No.: YX323
Matrix: (soil/water) WATER	Lab Sample ID: 17669.09
Sample wt/vol: 5.0 (g/mL) ML	Lab File ID: D7829.D
Level: (low/med) LOW	Date Received: 12/11/96
% Moisture: not dec.	Date Analyzed: 12/12/96
GC Column:DB-624 ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)	Soil Aliquot Volume: (uL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

COMPOUND NAME , CAS NUMBER RTEST. CONC. Q ========= \_\_\_\_\_ ======= 1. 78-78-4 Butane, 2-methyl-5.566 NJ 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.

FORM I VOA-TIC

PAB 1/28/97 OLM03.0

000100

#### 1E

# VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	EPA	SHIPLE	NO.
٠			
1			

Lab Name: ATAS, INC.	Contract: 68-D5-0018
Lab Code: ATAS Case No.: 25218	SAS No.: SDG No.: YX323
Matrix: (soil/water) WATER	Lab Sample ID: 17669.08
Sample wt/vol: 5.0 (g/mL) MI	Lab File ID: D7828.D
Level: (low/med) LOW	Date Received: 12/11/96
% Moisture: not dec.	Date Analyzed: 12/12/96
GC Column:DB-624 ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)	Soil Aliquot Volume: (117

Number TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER .	COMPOUND NAME	RT	EST. CONC.	Q
<del>-1. 1825-61-2</del>	Silane, methoxytrimethyl-		8	=====
2. 3.	Unknown	8.233 9.970	28	J
4. 5. 6.				
7. 8.				
9. 10. 11.				
12. 13.				
14. 15. 16.			·	
17. 18. 19.				
20				
22. 23. 24.				
25. 26.				
27. 28. 29.				
30				

1. Column bleck

FORM I VOA-TIC

HOB 1/28/97 OLMO3.0



# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX322RE

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17713.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8154.D

Level:

(low/med) LOW

Date Received: 12/14/96

% Moisture:

decanted: (Y/N)

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 6.9

Number TICs found: 26

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4 452	36	I
2. 76-09-5	2.3-Butanediol 2.3-dimethyl	4.621	31	
3. 4740-00-5	Thiophene, tetrahydro-3-meth	4.845	13	<del>NJ</del>
_4	UNKNOWN	4.998	5	J
<del>-5. 590-67-0</del>	Cyclohexanol, 1-methyl-	5.069	12	NJ
<del>-6.</del>	UNKNOWN	5.096	16	
7	UNKNOWN	5.555	6	J
8.	UNKNOWN	6.282	. 6	J
9.	UNKNOWN	6.495	8	J
10.	UNKNOWN	6.539	13	J
11.	UNKNOWN	6.780	. 6	J
12.	UNKNOWN	6.960	8	J
13. <del>617-94-7</del>	Benzenemethanol, alpha, al	7.043	. 9	ŊJ
14.	UNKNOWN	7.382	11	J
15.	UNKNOWN	7.749	9	J
16.	UNKNOWN	7.903	6	J
17.	UNKNOWN	8.067	5	J
18.	UNKNOWN	8.177	8	J
19.	UNKNOWN	8.446	9	J
20.	UNKNOWN	9.072	8	Ĵ
21.	UNKNOWN	9.215	5	Ĵ
22.	UNKNOWN	9.462	12	J
23.	UNKNOWN	10.227	19	J
24. 88-19-7	Benzenesulfonamide, 2-methyl		12	иJ
25. 934-34-9	2(3H)-Benzothiazolone	11.974	38	NJ
26. 84-69-5	1,2-Benzenedicarboxylic acid	13.067	24.	N.T
27.				
28.				
29.	,		· · · · · · · · · · · · · · · · · · ·	
30.				
			*	
	- 1 <u></u>			

1.-76. elited 730 seconda before planol 3. Unknown aromatic

000297

EPA SAMPLE NO.

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0018

YX323		

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.01

Sample wt/vol: 1000

Lab Name: ATAS, INC.

(g/mL) ML

Lab File ID: EE8260.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture:

decanted: (Y/N)\_\_\_\_

Date Extracted: 12/12/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.2

Number TICs found: 14

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2 2. 65-85-0 3. 95-16-9 4. 123-92-2 5. 6. 7. 8. 9. 10. 11. 0-00-0 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.	2 Pentanone, 4-hydroxy-4-met Benzoic Acid Benzothiazole 1-Butanol, 3-methyl-, acetata UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN Tridecanol, 2-ethyl-2-methyl- UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	10.238 10.402 13.348 13.517 15.177	7 3 15 42 4 2 2 3 3 5	NJ NJ NJ J J J J J J J J J J J J J

eluted >30 seconds before phenol

000335

Hab 1/29/17 OLM03.0 Alkane Report for Sample : YX323

Data file : EE8260.d Matrix :

CAS #	Compound	•	R.T.	Estimated Conc.
112-95-8 * -646-31-1	Eicosane <del>Tetracosano</del> UNKNOWN ALKANE UNKNOWN ALKANE		16.60 17.50 18.00	5 3
* <del>-75163-99-</del> 4	Nonadecane, 2,3-dimethyl-		18.57 19.22	6 4

Concentration Units: Water: UG/L

Soil: UG/KG

401/9/M

\* Unknown alkane

EPA SAMPLE NO.

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX324		

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.02

Sample wt/vol: 1000

(g/mL) ML

Lab File ID:

EE8139.D

Level:

(low/med)

Concentrated Extract Volume:

Date Received: 12/13/96

% Moisture:

LOW

Date Extracted: 12/16/96

decanted: (Y/N)

1000 (uL)

Date Analyzed: 12/30/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) N

pH: 7.5

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg): UG/L

		i		l
CAS NUMBER	COMPOUND NAME	RT.	EST. CONC.	Q
=======================================		======	=========	=====
<del>-1. 123-42-2</del>	2-Pentanone, 4-hydroxy-4-met	4.455	2	NJB
2. 112-34-5	Ethanol, 2-(2-butoxyethoxy)-	7.951	10	J
3.	Unknown	8.462	2	J
4.	UNKNOWN	8.560	2	J
5.	UNKNOWN	8.680	. 3	J
6.	UNKNOWN	10.819	13	J
7.	UNKNOWN	11.501	3	J
8. 19097-77-9	Phosphoric acid, methylsilyl	12.249	12	ŊJ
9.	UNKNOWN	12.718	3	J
10. 57-10-3	Hexadecanoic acid	13.493	5-	- NJB
11.	UNKNOWN	14.318	2	J
12.	UNKNOWN	14.455	12	J
13.	UNKNOWN	14.635	2	
14.	UNKNOWN	14.767	2	.ਹਵੱ
-15	UNKNOWN	14.833	12	JB JØ
1680-05-7	Phenol, 4,4'-(1-methylethyli		11	NJ
-17.	UNKNOWN	15 774	16	JB
18.	UNKNOWN	21.220	12	J
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000364

HOB 1/20/97

Alkane Report for Sample : 1X324

Page:

Data file : EE8139.d Matrix :

CAS #	Compound	R.T.	Estimated Conc.
<del>* 593-45-3</del>	Octadecane	17.20	<u> </u>
¥ <del>-629-92-5</del>	Nonadecane	18.20	12
112-95-8	Eicosane	18.80	12
55282-15-0	Docosane, 7-butyl-	19.49	13
1560-96-9	Tridecane, 2-methyl-	20.29	16
1560-84-5	Eicosane, 2-methyl-	22.29	16
	UNKNOWN ALKANE	23.60	. 15

Concentration Units: Water: UG/L

Soil: UG/KG

\* found in the associated method blank

### EPA SAMPLE NO.

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX325	
-------	--

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.12

Sample wt/vol: 1000

(g/mL) ML

EE8152.D Lab File ID:

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: \_\_\_\_ decanted: (Y/N)\_\_\_

Date Extracted:12/16/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) N

pH: 8.0

Number TICs found: 14

CONCENTRATION UNITS:  $\cdot$ (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.438	2	JB
2.	UNKNOWN	10.794	8	J
3.	UNKNOWN	11.480	ع	J
4. 19097-77-9	Phosphoric acid, methylsilyl	12.226	6	NJ
5. <del>142-50-7</del>	1,6,10-Dodecatrien-3-ol, 3,7	13.986	5	NJ
6.	UNKNOWN	14.434	22	. J
<b>7.</b>	UNKNOWN	14.734	2	J
8.	UNKNOWN	14.784	7	JE JE
<del>-9</del> -	UNKNOWN	14.811	11	JB
10.	UN KNOWN UNKNOWN	15.123	8	J J
11.	UNKNOWN	15.654	4	
12.	UNKNOWN	15.753	11	JB
13. <del>1740-19-8</del>	1-Phenanthrenecarboxylic aci		6	ŊJ
14. 15.	UNKNOWN	16.196	11	J
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FORM I SV-TIC

OLM03.0

Arkane Report for Sample : 7325

Page:

Data file : EE8152.d Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
0-00-0 * <del>-629-99-2</del> 112-95-8 * <del>-1560-86-7</del>	UNKNOWN ALKANE 2-Methyloctadecane Pentacosane Eicosane Nonadecane, 2-methyl-	16.27 16.74 17.18 17.65	4 5 5 5
593-45-3 1560-89-0 7098-22-8	Octadecane Heptadecane, 2-methyl- Tetratetracontane UNKNOWN ALKANE UNKNOW ALKANE	18.77 19.45 20.25 21.17 22.26	8 8 8 9 7

Concentration Units: Water: UG/L Soil: UG/KG

\* found in the associated method blank

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	<b></b>	 • .
vy:	326	

Lab Name: ATAS,	INC.
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Contract: 68-D5-0018

EPA SAMPLE NO

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.05

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: EE8142.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: decanted: (Y/N)\_\_\_\_

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.6

Number TICs found: 8

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
<del>1. 123-42-2</del>	2-Pentanone, 4-hydroxy-4-met Ethanol, 2,2'-[oxybis(2,1-et-		3	NJB
2. <del>-112-60-7</del> 3.	UNKNOWN	7.979 11.762	3 5	NJ J
<del>-457-10-3</del>	Hexadecanoic acid	13.502 13.688	3	— JB ——JB
-6.	UNKNOWN	14.836	8	<del>- 33</del>
7. -8.	UNKNOWN	15.049 15.780	4	JB.
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eluted >30 seconds before phenol Unknown

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120 100437 Non 100437

Alkane Report for Sample : YX326

Page:

Data file : EE8142.d Matrix :

CAS #	Compound	R.T.	Estimated Conc.
593-45-3	Octadecane	17.68	. 5
* -	UNKNOWN ALKANE	18.21	8
112-95-8	Eicosane M	18.80	7
<del>-1120-21-4</del>	Elcosane Undecane Unknown ulkane	19.49	. 7
•	UNKNOWN ALKANE	22.31	10

Concentration Units: Water: UG/L

Soil: UG/KG

\* found in the associated nethod blank 12/13/19

1/29/97

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0018

EPA SAMPLE NO.

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.09

Sample wt/vol: 1000

Lab Name: ATAS, INC.

(g/mL) ML

Lab File ID: EE8265.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture:

\_\_\_\_\_ decanted: (Y/N)\_

Date Extracted: 12/12/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.4

Number TICs found: 7

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.304	3	NJ
2. 3. 4. 5. 6. 7. <u>4602-84-0</u> 8.	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN 2,6,10-Dodecatrien-1-ol, 3,7	5.153 5.294 5.903 13.519 15.424 17.774	3 2 5 3 3 5	л Т Т Т Т Т
9. 10. 11.				
12.				
15. 16. 17.				
19. 20. 21.				
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eluted >30 seconds before phenal Unknows

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Alkane Report for Sample: YX328

Page: 1

Data file : EE8265.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
544-85-4 112-95-8	UNKNOWN ALKANE Dotriacontane Eicosane UNKNOWN ALKANE	16.14 17.04 17.50 18.00	3 5 4 4

Concentration Units: Water: UG/L Soil: UG/KG

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX329RE

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID:

EE8156.D

Level: (low/med)

Date Received: 12/13/96

% Moisture:

LOW

decanted: (Y/N)\_\_\_\_

1000(uL)

Date Extracted:12/16/96

Concentrated Extract Volume:

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) N

pH: 6.7

Number TICs found: 16

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
CAD NONDER	COMPOUND NAME		ESI. CONC.	====
1 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.440	2	J
2. 617-94-7	Benzenemethanol, alpha., al	7.045	2	
3. 01, 34 ,	UNKNOWN	12 490	٠	
4	UNKNOWN	13.660	. 2	
5.	UNKNOWN	14.441	15	
5.	UNKNOWN	14.813	10	
7.	UNKNOWN	14.907	4	
8.	UNKNOWN	15.016	7	•
9.	UNKNOWN	15.656	4	
<u> </u>	UNKNOWN	15.050	12	
1. 1740-19-8	1-Phenanthrenecarboxylic aci	15.924		]
.2.		16.192	4	1
3 7225-64-1	UNKNOWN	16.192	5	
4. 544-76-3	Heptadecane, 9-octyl-		4	
	Hexadecane	17.188	4	
<del>5. 112-95-8</del>	Eicosane	17.658	4	
<u>6 - 629-92-5</u>	Nonadecane	18.183	8	1
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11. 1-Phenometrine orbosylic acid, 1, 2, 3. 4, 40, 9, 10, 100 - sets hydro-1, 44-dinehyl-7-yord Benzenenetland, ulpha, alpha.

See alkane report.

FORM I SV-TIC

Arkane Report for Sample : 4329 RE Page: 1

NB, - RA7

Data file : EE8156.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated /
₩	7225-64-1 -544-76-3	Heptadecane, 9-octyl-	16.73 17.18	4
*	112-95-8	Eicosane Nonadecane	17.65	.4

Concentration Units: Water: UG/L Soil: UG/KG

\* found in the associated method blank

1/2<sup>1</sup>/97

EPA SAMPLE NO.

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.: SDG No.: YX323

Matrix: (soil/water) WATER Lab Sample ID: 17669.08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: EE8263.D

Level: (low/med) LOW Date Received: 12/11/96

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_ Date Extracted:12/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/17/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 9.6

Number TICs found: \*

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EȘT. CONC.	Q
-1-123-42-2	2-Pentanone, 4-hydroxy-4-met		2	NJ-
2. 57-10-3 3. 4. 5.	Hexadecanoic acid UNKNOWN UNKNOWN	13.344 13.519 17.773	4 3 13	L L
6. 7. 8.				
9. 10. 11.				
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14. 15. 16.				
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19. 20. 21.				
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Arkane Report for Sample: 0x331 Page: 1

Data file: EE8140.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	16.75	3
	Tricosane	17.67	3

Concentration Units: Water: UG/L Soil: UG/KG

\* found in the associated method blank

2-4-97 R8

HPB 2/7/97

000013A NO 2-5-97

### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX3	32	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.04

Sample wt/vol: 1000

Lab File ID:

EE8141.D

(g/mL) ML

Date Received: 12/13/96

Level: (low/med) LOW

Date Extracted:12/16/96

% Moisture: \_\_\_\_ decanted: (Y/N)\_\_\_\_

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.7

Number TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
-1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.454	2	NJB
-2	UNKNOWN	13.685		JB
3.	UNKNOWN	14.458	6	J
<del>-4 .                                     </del>	UNKNOWN	14.834	9-	JB
5.	UNKNOWN	15.042	3	J J JB
<u>6</u> .	UNKNOWN	15.527	4	J
7.	UNKNOWN	15.680	. 5	Jø
-8.	UNKNOWN	15.773	16	JB
9.	UNKNOWN	15.953	4	J
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1/29/97 HARD.

rkane Report for Sample : 4332

Page: 1

Data file : EE8141.d

Matrix : WATER

Estimated CAS # Compound R.T. Conc. UNKNOWN ALKANE UNKNOWN ALKANE UNKNOWN ALKANE

Concentration Units: Water: UG/L Soil: UG/KG

\* found in the associated method blank

HOB 2/7/97

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX333 Contract: 68-D5-0018

Lab Name: ATAS, INC.

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.07

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: EE8149.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: \_\_\_\_ decanted: (Y/N)\_\_\_\_

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.2

Number TICs found: &

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	,Q
1. 123-12-2	2-Pentanone, 4-hydroxy-4-met UNKNOWN	4.437 13.665	3	<del>JB</del>
<del>-3.</del> 4.	UNKNOWN UNKNOWN UNKNOWN	14.814 15.659 15.757	6 2	JB J JB
<del>6.</del> 7.	UNKNOWN	17.943	5	JB
8. 9. 10.				
11. 12. 13.				
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i. eluted >30 seconds before phenol 2. 3. , 5., and 6. found in the associated method blank

EPA SAMPLE NO.

### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX363	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

SDG No.: YX323

Lab Code: ATAS Case No.: 25218 SAS No.:

Matrix: (soil/water) WATER

Lab File ID: EE8158.D

Level: (low/med) LOW

Sample wt/vol: 1000 (g/mL) ML

Date Received: 12/13/96

% Moisture: \_\_\_\_ decanted: (Y/N)\_\_\_

Date Extracted:12/16/96

Lab Sample ID: 17703.06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 12

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	i			·
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.433	3	NJB
2.	UNKNOWN	6.042	4	J
3. 95-16-9	Benzothiazole	8.516	3	NJ
-4. 544-63-8	Tetradecanoic acid	13.476	7	NJ NJ
5	UNKNOWN	13.661	4	JB
6. 57-11-4	Octadecanoic acid	14.611	, 3	NJ
7	UNKNOWN	14.011	3	JB
0	UNKNOWN	15 753	7	JB
<del>-9. 603-11-2</del>	1,2-Benzenedicarboxylic acid	16.649	11	NJ
10. 4128-17-0	2,6,10-Dodecatrien-1-ol, 3,7	17.936		
11.	UNKNOWN		10	NJ
:	UNKNOWN	18.029	4	JB
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FORM I SV-TIC

000616

Arkane Report for Sample: 1X363

Data file : EE8158.d Matrix :

CAS #	Compound	RPM F	R.T.	Estimated Conc.
629-92-5 * 112-95-8	UNKNOWN ALKANE Nonadecane Eicosane	/	.5.31 .6.74 .7.18	4 7
13287-23-5	Heptadecane, 8-methyl- Tricosane	•	7.65 8.18	10 25
630-03-5 629-99-2 630-06-8	Nonacosane Pentacosane Hexatriacontane	1 1 2	8.77 .9.45 20.24	25 28 28
13287-24-6 55333-99-8 646-31-1 3386-33-2	Nonadecane, 9-methyl- Eicosane, 7-hexyl- Tetracosane Octadecane, 1-chloro-	2	21.16 22.25 23.52 25.03	32 25 24 25

Concentration Units: Water: UG/L Soil: UG/KG

\* found in the associated method blank

TPO: [ ] FYI

[X] Attention

[ ]Action

Region 9

#### ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. <u>25218 Memo #01</u>	LABORATORY ATAS	
SDG NO. YX323	SITE NAMEVictoria Golf Course	
SOW OLMO3.2	REVIEW COMPLETION DATE February 10, 19	97
REVIEWER [ ] ESD [X] ESAT	REVIEWER'S NAME Dina David-Bailey	
NO. OF SAMPLES 12 WATER	SOIL OTHER	
	VOA BNA PEST OTHER	
1. HOLDING TIMES/PRESERVATION		
2. GC-MS TUNE	0 0	
3. INITIAL CALIBRATIONS	<u>o</u> <u>x</u>	
4. CONTINUING CALIBRATIONS	_x _x	
5. FIELD QC	<u>x</u> <u>x</u>	
6. LABORATORY BLANKS	<u>x</u> <u>o</u>	
7. SURROGATES	<u> </u>	
8. MATRIX SPIKE/DUPLICATES	<u> </u>	
9. REGIONAL QC	<u>N/A</u> <u>N/A</u>	
10. INTERNAL STANDARDS	<u>o x</u>	
11. COMPOUND IDENTIFICATION		
12. COMPOUND QUANTITATION		
13. SYSTEM PERFORMANCE	<u> </u>	
14. OVERALL ASSESSMENT	<u>x</u> <u>x</u>	
•		

- O = Data have no problems or problems that do not affect data quality.
- X = Data are qualified due to minor problems.
- M = Data are qualified due to major problems.
- Z = Data are unacceptable.
- N/A = Not Applicable

TPO ACTION: None.

**TPO ATTENTION:** (1) Several volatile results are qualified as nondetected and estimated (U,J) due to contamination in the storage blank. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results are estimated (J) due to low internal standard areas.

AREAS OF CONCERN: None.



In Reference to Case No(s).: 25218 Memo #01

#### Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

	Te	rephone Record Log	
	Date of Call:	January 31, 1997	
	Laboratory Name:	ATAS	
	Lab Contact:	Ruseal Brewer	
	Region:	9	
	Regional Contact:	Dina David-Bailey, ESAT/Lockheed	
	Call Initiated By	: Laboratory <u>X</u> Region	
In re	ference to data for the 1 YX322 through YX326, YX	Following sample(s): 328 through YX333, and YX363 (SDG No. YX323)	
	ry of Questions/Issues Di <u>OLATILES</u>	iscussed:	
1.	not included in the data SDG, note that the instr	nce check data for the 12/27/96 @ 1400 run was package. Although not associated with this rument performance check data for the 12/27/ne data package. Please provide the missing	.s ′96 @

- Sample mass spectrum for a tentatively identified alkane at a retention time (RT) of 19.49 minutes was not provided for sample YX326. The alkane report for sample YX326 (see page 000009) lists the alkane as undecane, CAS # 1120-21-4. Please clarify.
- 3. Sample mass spectrum for tetradecane at RT=17.20 minutes was provided (see page 580) for sample YX331. However, this alkane was not included in the alkane report for sample YX331. Please clarify.
- 4. Sample mass spectrum for alkanes were provided on pages 598-600 for sample YX332. However, no alkane report was submitted for sample YX332. Please clarify.

#### Summary of Resolution:

- 1. The laboratory provided the missing instrument performance check data.
- The laboratory provided the missing sample mass spectrum.
- 3.-4. The laboratory provided the alkane reports as requested.

elma David-Barley
nature

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy



# Contract Laboratory Program REGION 9/LABORATORY COMMUNICATION SYSTEM CSF COMPLETENESS EVIDENCE AUDIT PROGRAM Telephone Communication Summary Form

AUDIT NO.:	2/97/13	LAB CO	NTACT: Ruseal Brewer
CASE NO.:	25218 Memo #01	LAB CO	DE: ATAS
SDG NO.: _	YX323	LAB NA	ME: <u>American Technical &amp;</u>
-			Analytical Services
FILENAME:	25218M01.TCS	LAB LO	CATION: Maryland Heights, MO

#### Summary of Questions/Issues Discussed:

- (1) The Form DC-1 (Sample Log-In Sheet) on page 861 should be corrected and resubmitted for the following items:
  - (a) Item 11 (Time Received) should also list 1400, in addition to 0845. Samples YX332 and YX326 were received 12/13/96 @ 1400 according to chain-of-custody form 366647; and
  - (b) The "Remarks" column should indicate a cooler temperature of 5°C starting from sample YX363 down to sample YX325.
- (2) Please correct and resubmit a corrected last page of the Form DC-2 for the following items:
  - (a) Incorrect year (1996 instead of 1997) was entered by the QA assistant; and
  - (b) No date was entered by the document control officer.

#### Summary of Resolution:

- (1) The laboratory resubmitted a corrected Form DC-1.
- (2) The laboratory resubmitted a corrected last page of the Form DC-2.

Auditor, ESAT/Lockheed

Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

MARTIN LOCKHEED 4160 |5013 CC: 11/20 |97

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9

301 Howard Street, Suite 970, San Francisco, CA 94105-2241

Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO:

Rachel Loftin

Site Assessment Manager

States Planning & Assessment Office, SFD-5

THROUGH:

Rose Fong Vose

ESAT Regional Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Jack Berges 🦠

Team Manager

Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005 Work Assignment No.: 9-96-0-4 Technical Direction No.: 9604116

DATE:

February 21, 1997

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE:

Victoria Golf Course

SITE ACCOUNT NO.:

CERCLIS ID NO .:

CAD980818926

CASE NO.:

25268 Memo #01

SDG NO.:

YX354

zz

LABORATORY:

ANALYSIS:

Southwest Labs of Oklahoma, Inc. (SWOK)

Volatiles and Semivolatiles

SAMPLES:

4 Water and 3 Soil Samples (see Case Summary)

COLLECTION DATE:

January 8, 1997

REVIEWER:

Adriane Scheele, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Ray Flores, TPO USEPA Region 6

TPO: [ ] FYI

[X] Attention

[ ]Action

SAMPLING ISSUES: [X] Yes

[ ]No



#### Data Validation Report

25268 Memo #01

Victoria Golf Course

Laboratory: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer:

Adriane Scheele, ESAT/Lockheed

February 21, 1997

#### Case Summary I.

#### SAMPLE INFORMATION:

VOA and BNA Samples: Water: YX327, YX334, YX335, and YX336 Soil: YX349, YX353, and YX354

Low Level Groundwater and Soil

Concentration and Matrix: Analysis:

Volatiles and Semivolatiles

SOW: OLM03.2

Collection Date: January 8, 1997

Sample Receipt Date: January 10, 1997

Extraction Date: January 10, 1997

VOA Analysis Date: January 13, 16, 17, and 21, 1997

BNA Analysis Date: January 17, 1997

#### FIELD QC:

Trip Blanks (TB): None Field Blanks (FB): None

Equipment Blanks (EB): YX334 and YX335

Background Samples (BG): None

Field Duplicates (D1): YX327 and YX336

#### METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK1: YX349, YX353, YX353MS, YX353MSD, and YX354

YX327, YX327MS, YX327MSD, and YX334 VBLK2:

VBLK3: YX335 and YX336

VHBLK1 VBLK4:

SBLK1: YX327, YX327MS, YX327MSD, YX335, and YX336 SBLK2: YX349, YX353, YX354, YX354DL, YX354MS, and

YX354MSD

SBLK3: YX334 and YX336RE

#### TABLES:

1A: Analytical Results with Qualifications

1B: Data Qualifier Definitions for Organic Data

Review

#### TPO ACTION:

None.

#### TPO ATTENTION:

(1) Several results for volatile and semivolatile target analytes are qualified as nondetected and estimated (U, J) due to contamination in laboratory blanks. (2) Several results for volatile and semivolatile target analytes are estimated (J) due to calibration problems. (3) Several results for semivolatile target analytes in one of the method blanks are estimated (J) due to a low internal standard response.

#### SAMPLING ISSUES:

A soil sample was not designated for quality control (QC) analysis on any of the chain of custody forms.

DL-Dilution; MS-Matrix Spike; MSD-Matrix Spike Duplicate; RE-Reextraction; VHBLK-Storage Blank 97-02-21-AS-02/25268M01.RPT

#### ADDITIONAL COMMENTS:

A temperature of 1°C was measured in the coolers containing all of the samples of this sample delivery group (SDG) which were received at the laboratory on January 10, 1997. This temperature does not meet the 4°C  $\pm 2$ °C sample preservation criterion.

The Tentatively Identified Compounds (TICs) found in the samples are reported on the Form 1Es, 1Fs, and alkane reports included in this report. No TICs were detected in the volatile fraction of samples YX327, YX334, and YX335 and the semivolatile fraction of sample YX334.

This report was prepared according to the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, and the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

#### II. Validation Summary

Acceptable/Com	
FIELD QC [YES] LABORATORY BLANKS [NO] SURROGATES [YES] MATRIX SPIKE/DUPLICATES [YES] INTERNAL STANDARDS [YES] COMPOUND IDENTIFICATION [YES]	] [YES] [] ] [YES] [] D] [NO] [E] ] [NO] [C] B] [NO] [C] B] [YES] [] G] [YES] [G] J [NO] [F] H] [YES] [H] A,I] [YES] [A]

N/A = Not Applicable

### III. Validity and Comments

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.
  - All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

B. The detected results for the following volatile target analytes are qualified as nondetected and estimated due to laboratory blank contamination. The results are flagged "U,J" in Table 1A.

Methylene chloride in samples YX349 and YX353 Acetone in samples YX327, YX349, and YX353

Methylene chloride was found in laboratory method blank VBLK4 and storage blank VHBLK1; and acetone was found in storage blank VHBLK1. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

# LOCKHEE MARTIN

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although 1,2-dichloroethane and trichroroethene were found in equipment blanks YX334 and YX335 and chloroform was found in laboratory method blank VBLK2, no data are qualified because these analytes were not found in any of the samples.

A laboratory method blank is laboratory reagent water or baked sand for solid matrices analyzed with all reagents, surrogates, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

- C. The detected results for the following semivolatile target analytes are qualified as nondetected and estimated due to laboratory and equipment blank contamination. The results are flagged "U,J" in Table 1A.
  - Di-n-butylphthalate in samples YX327, YX336, and YX354
  - bis(2-Ethylhexyl)phthalate in samples YX327, YX336, and YX353

Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were found in equipment blank YX335. Also, bis(2-ethylhexyl)phthalate was found in laboratory method blank SBLK2. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although diethylphthalate, di-n-butylphthalate, and bis(2-ethyl-hexyl)phthalate were found in laboratory method blank SBLK3, no data are qualified because the associated sample is equipment blank YX334.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

# LOCKHEELMARTIN

- D. The quantitation limits for the following volatile target analyte are estimated due to a large percent difference (%D) in the continuing calibration. The results are flagged "J" in Table 1A.
  - Bromoform in samples YX335, YX336, and method blank VBLK3

A %D of 26.4 was observed for bromoform in the continuing calibration performed January 17, 1997. This value exceeds the ±25.0% QC advisory validation criterion.

The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.

- E. The quantitation limits for the following semivolatile target analytes are estimated due to large percent differences (%Ds) in the continuing calibration. The results are flagged "J" in Table 1A.
  - 2,4-Dinitrophenol, 4-nitrophenol, 2,4-dinitrotoluene, and 4-nitroaniline in samples YX349, YX353, YX354, and method blank SBLK3

Percent differences of -31.2, -39.9, -25.4, and -28.6 were observed for 2,4-dinitrophenol, 4-nitrophenol, 2,4-dinitrotoluene, and 4-nitroaniline, respectively, in the continuing calibration performed January 17, 1997. These values exceed the ±25.0% QC advisory validation criterion.

- F. The quantitation limits for the following analytes are estimated due to a low internal standard area. The results are flagged "J" in Table 1A.
  - Di-n-octylphthalate, benzo(b) fluoranthene, benzo(k) fluoranthene, benzo(a) pyrene, indeno(1,2,3-cd) pyrene, dibenz(a,h) anthracene, and benzo(g,h,i) perylene in method blank SBLK3

The internal standard area for method blank SBLK3 fell below the QC advisory criterion, as shown below.

<u>Sample</u>	<u> Internal Standard</u>	<u>Area</u>	OC Limits
SBLK3	Perylene-d <sub>12</sub>	430195	600658-2402634

The quantitation limits for the analytes listed above are considered quantitatively questionable. Since the results are nondetected, false negatives may exist.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

G. The matrix spike and matrix spike duplicate results and relative percent differences (RPDs) for the analytes listed below in water QC samples YX327MS and YX327MSD and soil QC samples YX353MS, YX353MSD, YX354MS, and YX354MSD did not meet the criteria for accuracy and precision specified in the SOW. The recoveries and RPDs are presented below. The outliers are flagged with an asterisk (\*).

# LOCKHEE

<u>Analyte</u>	YX327MS %Recovery	YX327MSD %Recovery	RPD	QC lin	mits <b>%</b> Recovery
Benzene	122	98	22*	11	76-127
N-Nitroso-di-n- propylamine	38*	38*	0	38	41-116
1,2,4-Trichloro- benzene	40	38*	5	28	39-98
Acenaphthene	42*	40*	5	31	46-118
	YX353MS	YX353MSD		QC li	mits
<u>Analyte</u>	*Recovery	<pre>%Recovery</pre>	RPD	RPD	<pre>%Recovery</pre>
1,1-Dichloroethene Toluene	92 127	73 102	23* 22*	22 21	59-172 59-139
<u>Analyte</u>	YX354MS %Recovery	YX354MSD %Recovery	RPD	QC li <u>RPD</u>	mits <u>%Recovery</u>
2,4-Dinitrotoluene Pyrene	86 76	95* 24*	10 104*	47 36	28-89 35-142

The results obtained may indicate poor laboratory technique, sample nonhomogeneity for soils, or matrix effects which may interfere with accurate analysis. Since the RPDs for 1,1-dichloroethene and toluene are only slightly outside the QC limits, no adverse effect on the quality of the data is expected. Although the recovery for 2,4-dinitrotoluene in QC sample YX354MSD is above the QC limit, this recovery does not indicate an analytical deficiency. The effect of the high RPDs for benzene and pyrene and low recoveries for N-nitroso-di-n-propylamine, 1,2,4-trichlorobenzene, acenaphthene, and pyrene on the quality of the data is not known.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

- H. Although not detected in any associated blanks, acetone, 2-butanone, and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes listed below may be artifacts.
  - Acetone in sample YX354
  - 2-Butanone in samples YX349 and YX354
  - Dimethylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate in sample YX349
  - Diethylphthalate in samples YX327, YX336, and YX354
- I. The volatile fraction of sample YX354 was analyzed at a 5-fold dilution due to high levels of target analytes. The CRQLs listed for the volatile fraction of sample YX354 in Table 1A have been multiplied by the dilution factor.

Low Level Groundwater

Samples for Volatiles

#### ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25268 Memo #01

Victoria Golf Course Site:

Southwest Labs of Oklahoma, Inc. (SWOK)

Lab.:

Reviewer: Adriane Scheele, ESAT/Lockheed

February 21, 1997 Date:

Concentration in  $\mu g/L$ 

Station Location Sample I.D.	GW-8- YX32	7 D1		GW-1 YX33	4 EE	; }	GW-1 YX33	5 EE	3	GW-1" YX336	6 D1		Metho VBLK		ank
Date of Collection	1/8/97			1/8/97			1/8/97	_	_	1/8/97			D 14	W7 - N	Com
Volatile Compound	Result	-	Com	Result	+	Com	Result	+-	Com	Result	+	Com	Result	+	Com
Chloromethane	10 U	A secretary is	***************************************	10 U	4888888	2002757465	10 U	ologogga	100000000000000000000000000000000000000	10 U	40000000	000000000000000000000000000000000000000	10 U	okooooo	
Bromomethane	10 U	1		10 L	1		10 L	T		10 U			10 U		
Vinyl chloride	10 U	40000000	14445345345	10 U	90000000	000000000000000000000000000000000000000	10 U	0 0000000		10 U	doccoss		10 U	0100000000	
Chloroethane	10 U	1		10 L			10 U	1		10 U			10 L	1	
Methylene chloride	10 U	1000000	910000000000000000000000000000000000000	10 U	Hoosees		10 U			10 U	00000000		10 U	alaasataa	
Acetone Jaby	17 U	1	В	<u></u> 10 L			10 L	1		10 U			10 U	1	
Carbon disulfide	10 U	10000000	000000000000000000000000000000000000000	10 L	Massassa	188888888	10 L	04000000		10 U	100000		10 U	9 00000	
1,1-Dichloroethene	10 U	1		10 L			10 L	1		10 L	1		10 L	1	
1,1-Dichloroethane	10 U	40000000	9888888888	10 L	placeses	100000000000000000000000000000000000000	10 L	10 000000		10 U	640000000		10 U	oboccoo	
1,2-Dichloroethene (total)	10 U	1		10 1			10 L			10 L	1		10 t	1	4 D
Chloroform	10 U	40000000	3888888888	10 U	J  :	100022000	10 L	ال ((((((((((((((((((((((((((((((((((((		10 U	0.00000000	 	1 I	decises	AB
1,2-Dichloroethane	10 U			11		В	10		В	10 L	1		10 U	1	
2-Butanone	10 U	140000000	2000000000000	10 U	04000000	100000000000000000000000000000000000000	10 U	20-00000		10 U	44000000		10 U	90000000	
1,1,1-Trichloroethane	10 U			10 l			10 1			10 L			10 U		
Carbon tetrachloride	10 L	odoooooo	000000000000000000000000000000000000000	10 U	ol 200000		10 U	valence co	30000000	10 U	al arrana		10 U	10 000000	1
Bromodichloromethane	10 T			10 1			10 <b>t</b>			10 U	1		10 t		
1,2-Dichloropropane	10 L	e komana		10 T	e-100000	0.0000000000000000000000000000000000000	10 U	00 000000	400000000000000000000000000000000000000	10 U	<li>64 0000000</li>		10 U	taka asasa	1
cis-1,3-Dichleropropene	10 U			10 1			10 t	J	_	10 t			10 t		
Trichloroethene	10 U	a <b>d</b> 50000000	100000000000000000000000000000000000000	6 I	90 <b>4</b> 000000	AB	10	1 <u>2</u> (1111)	B	10 U	se <b>l</b> 000000		10 U	en la company	
Dibromochloromethane	10 L			10 T			10 T			10 t			10 T		
1,1,2-Trichloroethane	10 U	e <b>d</b> 00000000	-00000000000000000000000000000000000000	10 J	od same	2 22222223	10 T	40-00000		10 U	90-000000	300000000	10 U	oolooooo	
Benzene	10 l	1	G	10 1			10 1			10 T			10 t		
trans-1,3-Dichloropropene	10 U	J	> 0000000000000	10 T	554 565555	  -	10 T	en language		10 T	::4occocc	1	10 U	03 03 55 55	1
Bromoform	10.1			10 1				U J	D	10 T		D	10 t		
4-Methyl-2-pentanone	10 U	2440000000	000000000000000000000000000000000000000	10 T	:- beese		10 (	soo kootee		10 (	50 000000		10 T	anterese.	
2-Hexanone	10 1	J		10 1			10 1			10 1			10 1		
Tetrachloroethene	10 t	J		10 1	60400000	-	10 1	2010000	100000000000000000000000000000000000000	10 T	e4 eeee		10 1	00/00000	3 333333
1,1,2,2-Tetrachloroethane	10 1	J		10 1			10 1			10 1			10 1		
Toluene	10 U	J		10 1	80, 90000		10 1	000400000	**********	10 0	00-000000	×1.000000000000000000000000000000000000	10 1	00000	sal ::::::::::
Chlorobenzene	10 1	J		10	J		10 1	U		10 1			10		
Ethylbenzene	10 T	ן		10	υ		10 1	U	850000000000000000000000000000000000000	10 1		200000000000	10	CONTRACTOR OF THE PARTY OF THE	
Styrene	10 1	J		10	U		10	U		10 1	J		10		
Xylene (total)	10 1	U		10	ט		10	U		10 1	IJ		10	U	
, , , , , , , , , , , , , , , , , , , ,															
							A C C C C C C C C C C C C C C C C C C C			200000000000000000000000000000000000000	0000000			100 00000	90 000000
												1	ļ.,		
										000000000000000000000000000000000000000	900 00000				33 33 33 33
	desserves		100000	4						1	:4886	1	1		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank TB-Trip Blank, BG-Background Sample

Low Level Groundwater

Samples for Volatiles

## ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25268 Memo #01

Site: Victoria Golf Course

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 21, 1997

Concentration in  $\mu g/L$ 

Sample I.D.	Method VBLK		ınk	Metho VBLK		ınk	Storag VHBI		ınk	CRQL					
Volatile Compound	Result	Val	Com	Result	Val	Com	Result		Com	Result	Val	Com	Result	Val	Com
Chloromethane	10 U			10 U			10 l	0.0000000	1000000000000	10	99999	3000000000			S2000000000000000000000000000000000000
Bromomethane	10 U			10 U			10 1	J		10					
Vinyl chloride	10 U			10 U			10 T	904 000 000	00000000000	10	200000	A 1000000000000000000000000000000000000		8	400000000000000000000000000000000000000
Chloroethane	10 U			10 U			10 1			10					
Methylene chloride	10 U			2 L	J	AB	9 1	55 555555	AB	10	100000	3 0000000000	 	40000	
Acetone	10 U			10 U			3.1		AB	10					
Carbon disulfide	10 U			10 U	90000000	40000000000	10 1	sal sector		10	1333333				
1,1-Dichloroethene	10 U			10 L	j		10 1	3		10					
1,1-Dichloroethane	10 U	ſ		10 L	J	1801000000	10 1	do 1000000	100000000000000000000000000000000000000	10	10000	110000000000000000000000000000000000000	<u> </u>	1	
1,2-Dichloroethene (total)	10 U			10 L	1		10 1			10					
Chloroform	10 U			10 L	J		10 1	00 000000	010000000000000000000000000000000000000	10		1000000000		: 1000000	100000000
1,2-Dichloroethane	10 U			10 L	)		10			10					
2-Butanone	10 U	J		10 U	J		10	900 000000	4000000000	10	200000	301000000000000000000000000000000000000		:: 1 × × × × × × × × × × × × × × × × × ×	33833333
1,1,1-Trichloroethane	10 L	ı		10 1	3		10			10					
Carbon tetrachloride	10 U	J		10 U	J		10	500 00000	800000000000000000000000000000000000000	10	8 8888	88 000000000			
Bromodichloromethane	10 L	J		10 1	)		10			10					
1,2-Dichloropropane	10 L	J		10 T	90 000000		10	500400000		10	9 9999				
cis-1,3-Dichloropropene	10 L	J .		10 1			10			10					
Trichloroethene	10 U	J		10 T	201000000	10 000000000	10	0000 00000	101 CONTROL (CO	10	8 8000				
Dibromochloromethane	10 1	)		10 1			10			10					
1,1,2-Trichloroethane	10 U	J		10 T	00400000	204,000,000,000	10	000 00000	22 22 22 22 22 22 22 22 22 22 22 22 22	10	34333				
Benzene	10 T	J		10 1	J		10			10					
trans-1,3-Dichloropropene	10 U	J		10 1	IJ	50 00000000	10	00000000	000000000000000000000000000000000000000	10	3818888				
Bromoform	10 T	J 3	D	10 1			10			10					
4-Methyl-2-pentanone	10 U	ן		10 1	U		10	900010000		10	***	880 888888			
2-Hexanone	10 1	J		10	ט		10			10					
Tetrachloroethene	10 1	ט		10 1	U		10	1000-0000	2010000000	10	ea eas				
1,1,2,2-Tetrachloroethane	10 1	٥		10			10			10		1			
Toluene	10 1	ט		10	555-55550	xxx400000000	10	0000 0000	10040000000	10	***	***	***		
Chlorobenzene	10 1	U		10			10			10					
Ethylbenzene	10 1	U		10	U	200-00000000	10	U		10	322 223			***	
Styrene	10 1	U		10	U		10			10					
Xylene (total)	10	U		10	U	50040000000	10	U	000000000	10	::1::::	1000 (000 000 000 000 000 000 000 000 00		***	
•															
					arakana			2000 000	860\$500000		888	3833 38888		333	
						A3080676770		::::::::::::::::::::::::::::::::::::::	2000000000	KAS 1000000000000000000000000000000000000	ssal sz	50530500000			331
					<u>.</u> ]			50000-000	2000 0000000	****	203	000000000			000000000000000000000000000000000000000
													inlicate Pairs		

Val-Validity: Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank TB-Trip Blank, BG-Background Sample

Low Level Soil Samples

for Volatiles

#### ANALYTICAL RESULTS TABLE 1A

Case No.: 25268 Memo #01

Victoria Golf Course Site:

Southwest Labs of Oklahoma, Inc. (SWOK) Lab ..:

Reviewer: Adriane Scheele, ESAT/Lockheed

February 21, 1997 Date:

Concentration in µg/Kg

Analysis Type:

•				55.6	10		SS-8-	20			Metho	d Bla	ınk			
tation Location	SS-6-1			SS-8-			SS-8 YX35			1	VBLK		шк	CRQ	ī.	
ample I.D.	YX349			YX35			1/8/97			ì	V.DLK	.1		CALQ	~	
Date of Collection	1/8/97		·	1/8/97					Соп	+	Result	Val	Com	Result	V	l Com
olatile Compound	Result		Com	Result		Com	Result 63 U	-	I	-	10 U	<del></del>	Com	10	<u> </u>	
Chloromethane	14 U	40000000	 	12 U	oloccour.		63 T	en la conse	Ī		10 U	40000000		10		
Bromomethane	14 U	1		12 1	1,,,,,,,,,				I		10 U			10	990000000	000000000000000000000000000000000000000
/inyl chloride	14 U	OF STREET	100000000000000000000000000000000000000	12 U	<ul> <li>0.000000</li> </ul>		63 U	10400000	december.		10 C	4000000		10		
Inloroethane	14 L			12 1	1.		63 t		1		10 U			10		600000000
Methylene chloride	14 U	docecco	В	12 T	×4000000	B	63 T	ار ***	I H		10 t	Noocee		10		
Acetone	20 L		В	12 1		В	390				10 C	1		10		
Carbon disulfide	14 L	14000000		12 U	w. <b>1</b> 000000		33 1	00-00000	A		10 C	3400000		10		
,1-Dichloroethene	14 (	1		12 1		G	63 1		1		10 C		100000000000000000000000000000000000000	10	100	2000000000
,1-Dichloroethane	14 L	1000000	2 20200000000	12 (	XX 1000000	3	63 1	40,00000	I		10 t	o <b>l</b> 000000		10		
,2-Dichloroethene (total)	14 L	1		12 1			63 1		1					10	200 0000	564,000,000,000
Chloroform	14 U	o <b>1</b> 000000	112717878888	12 1	00400000	84600000000	63 1	vin coord	I		10 U 10 U	0.000000		10		
1,2-Dichloroethane	14 1	- t		12 1			63	U	1		10 U	1		10		(A) (4) (4) (4) (4) (4)
2-Butanone	7 I	A Proposi	AH	12 1	00-00000		310		H	900 60	anamanan ninggi saga	0.000000		10		
1,1,1-Trichloroethane	14 l			12			63		1		10 t			10		
Carbon tetrachloride	14 T	10000000	842500000000	12	49 00000	80 00000000	63	500 0000	I		10 T	901-000-00-		10		
Bromodichloromethane	14 1	J		12			63		1		10 t			10	30001000	
1,2-Dichloropropane	14 โ	::-losses	S-000000000	12	V-14-00000	00 00000000	63	00040000	I	seeds:	10 T	00 000000		10		
cis-1,3-Dichloropropene	14 1			12			63		1	and the	10 1			10		
Trichloroethene	14 1		00100000000000	12	20 <b>1</b> 000	5215050565	63	800 8000	I	osotka	10 1	obligación		10	90004-000	
Dibromochloromethane	14 1			12			63		1	CONTRACTOR	10 1			10		
1,1,2-Trichloroethane	14 1	aa <b>4</b> aaaaa	00-00000000	12	000-100000	36 000000000	63	40040000	J	es de	10 1	oo loossa		salsoccecececece	20000000	
Benzene	14.7	U .		12			29				10			10		
trans-1,3-Dichloropropene	14	U		12	0000-0000		63	2000-000		saasta	10	200 (0000)		10	20000 000	
Bromoform	14	U		12			63	U			10			10		
4-Methyl-2-pentanone	14	U	VAL 00000000	12	ara basa	250-2000555	88				10	200-0000		10	000001000	
2-Hexanone	14	U		12	U		63				10			10		
Tetrachloroethene	14	U		12	2000-0000		63	0000 000		ososki	10	0004-0000		10	9000	
1,1,2,2-Tetrachloroethane	14	U		12	บ		63	U			10			10		
Toluene	14	U		12	U	G	82	00000000		9999	10	000 0000	:	10	000000	
Chlorobenzene	14	U		12	U		330				10			10		
Ethylbenzene	14	U		12	U		260	4000 kgs	100010000		10	aralosos	200 (200	10	M00000 00	
Styrene	14	U		12	U		63				10			10		
Xylene (total)	2	L J	A	12	U		1800	2000 00	0000		10	U	999 999999	10	) ::::::::::::::::::::::::::::::::::::	
/																
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		0000	0000 0000000		30000	2000 2000		::::::::::::::::::::::::::::::::::::::								
		-1							- 1						1	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank TB-Trip Blank, BG-Background Sample

### ANALYTICAL RESULTS

TABLE 1A

Case No.:

25268 Memo #01

Site:

Victoria Golf Course

Lab. :

Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 21, 1997

Analysis Type:

Low Level Groundwater Samples

for Semivolatiles

Concentration in µg/L

Station Location Sample I.D.	GW-8- YX327	-	GW-1 YX33 1/8/97	4 EB	GW-1 YX33 1/8/97	5 EB	GW-1' YX330 1/8/97	5 D1	Metho SBLK	d Blank 1	Metho SBLK	od Blank 3	CRQI	<b>,</b>
Date of Collection	1/8/97	Val Com	Result	Val Com	Result	Val Com	Result	Val Con	Result	Val Com	Result	Val Com	Result	Val Com
Semivolatile Compound	Result	Val Com	10 U	+	10 U	· · · · · · · · · · · · · · · · · · ·	10 U		10 U	<del></del>	10 U	T	10	
Phenol	10 U		10 C	50,000,000,000,000,000,000,000	10 C	sa sococco de coccede (466	10 U	\$500000 00000000	10 L	a kasasasa dalah kasasa dalah	10 t	<b>,</b>	10	
bis(2-Chloroethyl)ether	10 U		20000000000000000000000000000000000000		10 U	1	10 U	10000	10 U	0.0000	10 U	11.000	10	
2-Chlorophenol	10 U		10 U	<b>2000 - 100 </b>	10 C	s koossaaa kaasaasaa 600	10 U	\$666-968-98888888	10 1	alus assal assassas	10 1	8 <b>.</b> 600600 (0-60600)	10	
1,3-Dichlorobenzene	10 U		10 L		200200000000000000000000000000000000000		10 U	1000000	10 U	4	10 t		10	
1,4-Dichlorobenzene	10 U		10 U	:46666446666666	10 U	sdocesco (0000000000	10 U	decesso laterates	10 U	>	10 T	56455666764666666666	10	
1,2-Dichlorobenzene	10 U		10 U	1	10 U		10 U	1 7 7 7 7 7 7 7 7 7	10 U		10 τ	1	10	
2-Methylphenol	10 U		10 t	adsaaaaaddaaaaaaa	10 U		10 U	dressed tresses	10 t	2 0000000 000000000	10 1	sa koonnaadkaaas taadaa	10	
2,2'-oxybis(1-Chloropropane)	10 U	Assessment of the second	10 U		10 t		10 C	45.00.00	10 U		10 T		10	
4-Methylphenol	· 10 U	100000010000000000000000000000000000000	10 U		10 t	edscessesdesseseses	10 C	decembers	10 t	a bookeed (48869999)	10 1	antamanan kacasasasas	10	
N-Nitroso-di-n-propylamine	10 U	G	10 T		10 t	1	nistraturando esta esta nova	garaga garaga	10 t	S	10 1		10	21 101 2010 11001000
Hexachloroethane	10 U		10 t	o konsessa kasasisisisida	10 T	o basses (2009)	10 U		10 U	o <b>1</b> 0000000 000000000	10 1	aa aaaaaaa laynyaa ah	10	
Nitrobenzene	10 U	1	10 t	A STATE OF THE STA	10 t	1	10 U	1	10 t		10 1	25 200000	10	
Isophorone	10 U	dhooccoo <b>d</b> rooccoocco	10 T	sodicoccoccideccoccides	10 t	90 <b>1</b> 00000000 <b>1</b> 0000000000000	0.5 L	5 <b>1</b> 5000000 0000000	10 t	80880000000000000000000000000000000000	10	49-0000000 DAV6000000	10	
2-Nitrophenol	10 U	garant manner	10 t		10 1	er lancature and an experience	10 U		10 0	v., <b>1</b> 200.00.00 p. 100000000	10		10	100000000000000000000000000000000000000
2,4-Dimethylphenol	10 U		10 (	sads sance a bookeepide	10 (		10 U	::::::::::::::::::::::::::::::::::::::	10 (	80 880 800 800 800 800 800 800 800 800	10	antoresia basanak	10	
bis(2-Chloroethoxy)methane	10 U		10 t		10 1	00 000000000000000000000000000000000000	10 T		eeee beeeeleen aan waar waa		10		10	
2,4-Dichlorophenol	10 U	J	10 (	- 15000-1500000	10 1	sa tananasa kananasa k	10 U		10 (	54 <b>4</b> 0000000   000000000	10	aalaasa kabalaasa	10	
1,2,4-Trichlorobenzene	10 U	i G	10 1		10 1	******	10 T	io account announce	10 1		10	***	10	
Naphthalene	10 U	J	10 1		10 1	66 (66666) - 66666666	10 t	64 200 200 P 200 800	10 1	979988888 86008888	10	::::::::::::::::::::::::::::::::::::::	10	
4-Chloroaniline	10 U	1	10 1	U	10 1		10 T		10 1		202000000000000000000000000000000000000		10	
Hexachlorobutadiene	10 U	J	10 1	U	10	sa lasawa (2006)	10 T	ed 1000000 (100000)	10 1		10	en keren kurikina	10	
4-Chloro-3-methylphenol	10 U	1	10 1	וו	10.1		0.6 1			A. P. C.	10	and the same of the same of	10	
2-Methylnaphthalene	10 U	J	10 1	U	10	AN <b>1</b> 00000000 1000000000	10 T		10 1	edenomikanska	10	000 000000 + 60°00000	10	
Hexachiorocyclopentadiene	10 t	<b>)</b>	10	ן אָט	10		10 1		10	201000000000000000000000000000000000000	ea pagada consessors	and the same of the same of	10	
2,4,6-Trichlorophenol	10 U	J	10	U	10	U	10 (	:0 <b>1</b> :00:00:00 <del>1</del> :00:00:00	10	i kanadaan	10	ecelosopo bedeixes	25	
2,4,5-Trichlorophenol	25 t	<b>j</b>	25	U	25	for brown was borners	25 1		25		25		10	
2-Chloronaphthalene	10 U	յ	10	U	10	au podoudá baldováva	10 U	a da sa sa sa da ta sa sa sa	10	xxx 0000000 000000000	10	550 05500 bi \$2000.	adagogggaaaaaaa	
2-Nitroaniline	25 t	<b>)</b>	25	U	25		25 1		25	VA (2000)	25	and the same of the same of	25	
Dimethylphthalate	10 U	J	10	U	10	Stadbardriddio 20 (2002)	10 1		10	ankonomika mom	10	400 <b>k</b> odoviški procestiki	10	
Acenaphthylene	10 t	j	10	U	10	U	10 1	U	10		10	Contractor   Contractor	10	
2.6-Dinitrotoluene	10 t	J	10	U	10	U	10 1	فتقدمنا فيسيمون	10	a de licitare de abadáción de	10	eder vides la facilità	10	
3-Nitroaniline	25 (	اار	25	ul l	25	u 📗	25 1	U	25	U	25	U	25	

Station Location  Sample I.D.	GW-8- YX327 1/8/97	7 D1	GW-1 YX33 1/8/97	4 EB	GW-1 YX33 1/8/97	5 EB		GW-17 YX336 1/8/97			Method SBLK	l Blank	Metho SBLK	3		CRQL		
Date of Collection	Result	Val Cor		Val Com	Result	Val Co	m F	Result	Val	Com	Result	Val Con	Result	Val	Com	Result	Val	l Con
Semivolatile Compound	10 U	G		+	10 U			10 U			10 U		10 T	J	hananan matah	10	0000000	.00000000
Acenaphthene	25 U	\$000000 000000	25 t	adamenta kanadadadadi	25 L	d 000000 b00000		25 U			25 U		25 U	J	E	25		
,4-Dinitrophenol	25 U	1	25 U	1 1	25 L	1		25 U			25 U		25 U	J J	E	25	000,000	A 100000
I-Nitrophenol Dibenzofuran	10 U	400000000000000000000000000000000000000	10 t	x 4000000000000000000000000000000000000	10 <b>t</b>	aleccentrosco		10 U			10 U		101	J		10		
***************************************	10 U	1	10 (		10 U			10 U			10 U		10 (	J J	E	10	db00000	
2,4-Dinitrotoluene	11	100000000000000000000000000000000000000	AAA 80 AAA AAA AAAA AAAA AAAA	st 10000000 1000000000000000000000000000	10 U	stemostonia		1 L	J	AH	10 U		0.6	. J	AC	10		
Diethylphthalate	10 U		10 0		10 (		· congression	10 U			10 U		10 1	J		10	2000000	604.000697
4-Chlorophenyl phenyl ether	10 U	ricoccosti accessos	10 (	S 000000000000000000000000000000000000	10 T	iologogogologica		10 U			10 U		10	<b>J</b>		10		
Fluorene	25 U	1	25 (		25 U		no may positivi	25 U			25 U		25 1	J J	E	25	sabaaaaa	50 050500
4-Nitroaniline 4,6-Dinitro-2-methylphenol	25 U	120000140000	25 (	18 JAN 1888 1888 1888 1888	25 U	56 <b>-</b> 0500000 <b>5</b> 00000		25 U			25 U		25	J		25		
	10 U	S 10000 11 11 11 11 11 11 11 11 11 11 11	10 1		10 U		00000	10 U			10 U		10	υ		10	2000000	********
N-Nitrosodiphenylamine	10 U	edecessor lessess	10 1	AN LOGGESCO LOGGESCOCO (	10 (	0010000000010100000		10 U			10 U		10	IJ		10		
4-Bromophenyl phenyl ether	10 t	durant and	10 1		10 T			10 U			10 U	1	10	ט		10	0000000	galacete
Hexachlorobenzene	25 U	9 000000 00000	25 1	ga aacaaaa baadaa kii kii kii	25 U	ookooooo booo		25 U			25 U		25	U		25		
Pentachlorophenol	10 U		10 1		10 0			10 U			10 U		10	U	200000000000000000000000000000000000000	10	9000000	
Phenanthrene	10 t	a 6000000 600000	10	aa laasaaa laa 14000000	10 1	es consect cate		. 10 U			10 L		10	U		10		
Anthracene Conhamala	10 U		10		10 1			10 U	1		10 U	1	10	U		10	9888	300
Carbazole Di-n-butylphthalate	10 U		00000 <b>0</b> 000000000000000000000000000000	www.coccoccoccoccocc	0.6	90 <b>-</b> 0000000-000	c	10 U	1	С	10 T	1	1	L  J	AC	10		
D1-n-buty/pnunarate Fluoranthene	10 T		10	A	10 1			10 U	J		10 U	J .	10	U	\$2 MA MANAMA	10	40.000	20000000
	10 1	*124624 SSS	10	ME 100000000 0000000000	10 1	200 00000000000000000000000000000000000		10 U	,		10 t	,	10	U		10		
Pyrene Butylbenzylphthalate	10 0	as server because	10		10			10 U	J		10 U	,	10	U		10	99 8000	2000
Butylbenzylphthalate 3.3'-Dichlorobenzidine	10 1	50-0000000-00000	10	ola latatata kannonista	10	500000000000000000000000000000000000000		10 L	j		10 U	<b>n</b>	10	U		10		
Benzo(a)anthracene	10 (	*******	10		10			10 U	J		10 U	<u> </u>	10	aga karawa		10	S. (10000)	
	10 1	aaleesaas kasaa	10	aba kasasaan kasasasasa	10	550 <b>1</b> 00000061 <b>1</b> 0000		10 L	j		10 t	<b>i</b>	10			10		
Chrysene bis(2-Ethylhexyl)phthalate	10 1	and an extra transfer	AND THE STREET, SANS AND THE STREET, SANS AND STREET, SAN	[	1	amenan represe	AC	10 U	J	С	10 U	<u>,                                    </u>	1	L J	AC	10		222
Di-n-octylphthalate	10 1	0.0000000000000000000000000000000000000	10	690 0000000 00000000	10	900 <b> </b> 0000000 0000		10 L	j		10 (	<b>J</b>	10	UJ	F	10		
Di-n-octylphuranate  Benzo(b)fluoranthene	10 1	and the same and t	10		10			10 L	J		10 t	J	10	and bases	20 0.0000000	10	200 00000	- 
Benzo(b)fluoranthene	10 1	50 <b>1</b> 06303040000	10	996 9999999 99999999	10	บไ		10 U	1		10 t	<b>,</b>	10	UJ	F	10		
A550.5550.55.	10	AND PROPERTY OF THE PROPERTY O	10	And become become	10		esecuta pas	10 L	J		10 1	J	10	UJ	F	10	55502555	
Benzo(a)pyrene	10		10	900 <b>-</b>   0000000  000000000000000000000000000	10	pedagend sk		10 U	<b>J</b>		10 1	<b>,</b>	10	U J	F	10		
Indeno(1,2,3-cd)pyrene	10		10	0.00	10	es promotors		10 U	ار		10 1	ן	10	U J	F	10	000000	1000000000
Dibenz(a,h)anthracene Benzo(g,h,i)perylene	10		10	1000 0000000 0000000	10	200-200-200-200		10 U	a 10000		10 1	<b>j</b> l	10	U J	F	10		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

#### ANALYTICAL RESULTS TABLE 1A

Case No.: 25268 Memo #01

Site:

Victoria Golf Course

Lab.:

Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 21, 1997

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentration in µg/Kg

Station Location Sample I.D.	SS-6-1 YX34	9		SS-8- YX35 1/8/97	3	SS-8-2 YX35 1/8/97	4		Metho SBLK		nk	CRQI	,							<b></b>
Date of Collection	Result		l Com	Result	Val Com		Val	Com	Result	Val	Com	Result	Val C	om	Result	Val Co	om	Result	Val	Com
Semivolatile Compound	450 U	+	Com	-390 U	<del></del>	420 L	+		330 U	,		330								
Phenol	450 U	d access		390 U	adagggg-1000000000	420 U	100000000000000000000000000000000000000		330 L	:dooooood		330								
ois(2-Chloroethyl)ether	450 U		S. 105555000000	390 U		420 L		sangansonor	330 L	1		330								0.00000000
2-Chlorophenol	450 U	deces		390 t		420 t	ed 2000000 loc		330 U	:40000004		330								
1,3-Dichlorobenzene	61 L	1	A	390 t		44 I		A	330 L			330							verd connects	
1,4-Dichlorobenzene	450 L		l A	390 t	ad areas de la casa de la casa de la casa de la casa de la casa de la casa de la casa de la casa de la casa de	34 I	000000000000000000000000000000000000000	Α	330 U	41000000		330								
1,2-Dichlorobenzene	450 U	1		390 t		420 U	Jane L	en de la composition	330 U	1 .1	(-0000000000	330								
2-Methylphenol	450 C	9,0000		390 t		420 t	400000000000000000000000000000000000000		330 U	0.0000000		330								
2,2'-oxybis(1-Chloropropane)	photos in a contraction of a contraction of a	1		390 t	of forced above and	240 I	1	A	330 U	1	begegeensner	330			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
4-Methylphenol	450 U	albecet.		390 (	g-1000000-00000000000000000000000000000	420 t	a ta accepta		330 T	************************************		330								
N-Nitroso-di-n-propylamine	450 U			390 (	A Laurentine .	420 t		200000000000000000000000000000000000000	330 U		cocococo	330			51 50 11 10 10 1 1 1 1 1 1 1 1 1 1 1 1 1					]
Hexachloroethane	450 U	okoo o		390 1	500,000,000,000,000,000,000	420 1	94 2000000 0		330 T	2000000		330								
Nitrobenzene	450 U	1		390 1		420 (	-11	000000000000	330 U	2,125,125		330								
Isophorone	450 U	este esc		390 1		420 1	o bassadi.		330 t	10 0000000		330								
2-Nitrophenol	450 t	*****		390 1	er economic community	420 1	00100000000		330 t			330	***********							
2,4-Dimethylphenol	5000000000-0000000000000000000000000000	od sees		390	eer beeneed been steel	420 1	004000000		330 1	2012/06/05		330								
bis(2-Chloroethoxy)methane	450 U			390	as passa approve see	420 1	and an arrange		330 1		\$1,000000000	330	0040000000000							
2,4-Dichlorophenol	450 t	: <b>1</b>		390	<i>0</i> 00 000 000 <b>0</b> 00 000 000	420 1	00 00000000		330 1	adesaas		330								
1,2,4-Trichlorobenzene	450 T	2010000		390		190		A	330 1	AND DESCRIPTION	100000000000000000000000000000000000000	330	X2000000000000000000000000000000000000		000000000000000000000000000000000000000					
Naphthalene	200 I	44 A A A A A A A A A A A A A A A A A A	A	e 000000000000000000000000000000000000	<i>5</i> 0100000000000000000000000000000000000	420	adament.		330	0000000000		330								
4-Chloroaniline	450 U			390	And an arrange and arrange and	420			330			330	2010000000000	) 	000000000000000000000000000000000000000	2000		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Hexachlorobutadiene	450 t	i de cons		390	aa kacaaa kaasaa	420	0010000000		330	004000000		330								
4-Chloro-3-methylphenol	450 t	00000		390	v	130		A	330			330		(30000000)  -	();;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;		20000000	,		
2-Methylnaphthalene	110 1	Salesii	<b>A</b>	390	80 00000 000000	420	800 0000000		330	80 <b>1</b> 00 100		330								
Hexachlorocyclopentadiene	450 1	open.		390	eccionos becarrer	420			330	*********	1000000000	330	550150000000000000000000000000000000000		200000000000000000000000000000000000000	00000 000000 010	**************************************	500000000000000000000000000000000000000	200	
2,4,6-Trichlorophenol	450 1	M-0000		390	sakassaksessa	565-06666666666666666666	310 300 300		830	884 BBBBB		830								
2,4,5-Trichlorophenol	1100	· · ·		990	va. 100000 u 100000000	1000	0		330	poods		330					00000000	600000000000000000000000000000000000000	2000 0000	20000000
2-Chloronaphthalene	24 1		I A	390	paga kalangan kendalahin	420	Mile Services		830	acal accided		830								
2-Nitroaniline	1100	~   ~		990	and manners and a common	1000	955 99 5555		330	va passas		330					0000000		2000 pod 000	Addictions.
Dimethylphthalate	46	88 88	I AH	ed terrenaminining the	State (State of State State	420	taa bibbaah		N 0000 N N N N N N N N N N N N N N N N	36 6000		330					(Î			di
Acenaphthylene	450			390	See See See See See See See See See See	420	5554555555		330			330				926 (8886)	30000000			10 800 (1976)
2,6-Dinitrotoluene	450	- 20 MAG	0000000000	390	sana kondudu (kalibitati	420	intelligender		330	860 <b>1</b> 00688	1	830								
3-Nitroaniline	1100	U		990	U	1000	U	10000	830	U	10000	830		<u> </u>				Potential control of the Potential Control of	00000#00000	<u>-9100000</u>

Station Location	SS-6-1			SS-8-1			SS-8-2			Method		nk	on or								
Sample I.D.	YX349	)		YX353			YX354		Ì	SBLK2	2	.	CRQL	•				Ì			
Date of Collection	1/8/97			1/8/97			1/8/97							T	I.	D 14	37-8	Com	Result	17/	ai Cor
Semivolatile Compound	Result	Val	Com		Val Co	m		Val (			Val	Com	Result	Val	Com	Result	Vai	Com	Result	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ai Coi
Acenaphthene	450 U	10000000	85650000000	390 U	***************************************	535555	120 L	łowococko	Α	330 U		::::::::::::::::::::::::::::::::::::::	330	1							
2,4-Dinitrophenol	1100 U	J	E	990 U	22,000,000	E	1000 U	1,,,,,,,,	E	830 U			830								.50300000
4-Nitrophenol	1100 U	J	<b>E</b>	990 U	100000010000	E	1000 U	400000000000000000000000000000000000000	Е	830 U	2000000		830								
Dibenzofuran	450 U			390 U			54 L	1	A	330 U			330						. •	40,000,000,0	.0000000000
2,4-Dinitrotoluene	450 U	J	E	390 U	<b>J</b> ]	E	420 U	100000000	EG	330 U		`	330								
Diethylphthalate	450 U			390 U			35 L	1 1	AH	330 U	33,0,000		330							95000 0000	
4-Chlorophenyl phenyl ether	450 U	1	VANAGOGGGGG	390 U	 		420 U	decessorie	880000000000000000000000000000000000000	330 U	00000000		330							<b></b>	
Fluorene	49 L	J	Α	390 U	144		150 L	Two	A	330 U	1.070.75		330								
4-Nitroaniline	1100 U	J	E	990 U	5 5050000 0000	E	1000 U	d coccesio)	E	830 U	49900001		830								
4,6-Dinitro-2-methylphenol	1100 U			990 U			1000 L	1		830 U			830								
N-Nitrosodiphenylamine	450 U	<u> </u>	000000000	390 U	J	0000000000	420 U		3203333333	330 U	10000000		330			 					
4-Bromophenyl phenyl ether	450 U	)		390 L			420 L	4.0004		330 U			330								999100000
Hexachlorobenzene	450 U	J		390 U	c   69,65000 6000		420 U	s leaseast t	100000000	330 U	100000000		330								
Pentachlorophenol	1100 U	1		990 L	7		1000 L	Л		<b>83</b> 0 U	,,,,,,,,,,		830								.000100000
Phenanthrene	120 L	J	A	390 L	al cocceded seed	20-00-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	1400	S 100000000	15,000,000,000	330 U	0.000000		330								
Anthracene	450 L	J .		390 L			550			330 U	1,,		330								300 10000
Carbazole	450 U	J		390 L	010000000010000		410 I	000000000	A	330 U	0.000000	 	330								
Di-n-butylphthalate	2000			390 L	400000		420 U	JJ	C	330 U	100000		330								
Fluoranthene	46 L	J	A	390 L	J	144444	2100	× 100,000	98981338388	330 U	0.000000	•	330								
Pyrene	42 I	J	Α	390 t			1300		G	330 U	e processors		330								
Butylbenzylphthalate	450 L	J		390 t	J	000000000000000000000000000000000000000	420 U	010000000	102220555555	330 U	ю коророро-		330								
3,3'-Dichlorobenzidine	450 t	J		390 t	v   1/1/2017   1/2/20		420 l	]		330 U	900000		330								
Benzo(a)anthracene	450 U	J		390 t	::- 0:00000 bits		980		1323333333	330 U	s: 4000000		330								
Chrysene	40 I	J	A	390 t	J		1000			330 L			330								
bis(2-Ethylhexyl)phthalate	2000	v	H	390 t	00 00000000000	C	16000	22122222	-	27 L	50,000000	AC	330								
Di-n-octylphthalate	43 I	J	AH	390 t			420 t	J		330 L			330								
Benzo(b)fluoranthene	. 450 U	J		390 T	J		670	50000000		330 U	504000000		330					ļ	1		
Benzo(k)fluoranthene	450 T	J	1	390 l	J		630			330 L			330						1		
Benzo(a)pyrene	450 U	J		390 (	J	200000000	830	201000000	<b>1</b> 3000000000000000000000000000000000000	330 L	20 000000		330					1	-		
Indeno(1,2,3-cd)pyrene	450 T	J		390 t	J		420			330 U			330								
Dibenz(a,h)anthracene	450 U	ט		390 1	ט		250	L J	A	330 t		83 888 888 888	330	***							
Benzo(g,h,i)perylene	450 T	J		390 1	ן  ו		440			330 U	J	1	330								
Percent Solids	73 %	<b>%</b>	[	84 9	<b>%</b>	1	79 9	%	<u> </u>	N/A			N/A			<u></u>			1		L

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample



#### TABLE 1B

### DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: SWL-TULSA

Lab Code: SWOK

Contract: 68-D5-0021

SDG No.: YX327 SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 28122.04

Sample wt/vol: 5.0

(g/mL) ML

Lab File ID: C23399.D

Level: (low/med)

Date Received: 01/10/97

% Moisture: not dec.

LOW

Date Analyzed: 01/17/97

GC Column:DB-624

ID: 0.53

Case No.: 25268

Dilution Factor: 1.0

Soil Aliquot Volume: \_\_\_\_(uL)

Soil Extract Volume: (uL)

Number TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 110-43-0 3. 4.	UNKNOWN 2-Heptanone	13.621	28 68	J NJ
5 . 6 . 7 . 8 . 9 .				
10. 11. 12. 13.				
15. 16. 17.				
19. 20. 21. 22.				
24. 25. 26. 27.				
28. 29. 30.				

EPA SAMPLE NO. VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS YX349 Contract: 68-D5-0021

Lab Name: SWL-TULSA

Case No.: 25268 SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol:

Lab Code: SWOK

5.0 (g/mL) G

Lab File ID: L24127.D

Level: (low/med)

LOW

Date Received: 01/10/97

% Moisture: not dec. 27

Date Analyzed: 01/13/97

GC Column:DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Aliquot Volume: \_\_\_\_(uL)

Soil Extract Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 15 13

CAS NUMBER	COMPOUND NAME	RT ======	EST. CONC.	Q =====
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 1213. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.		12.359 14.296 15.002 15.089 15.389 15.563 15.814 15.950 16.095 16.336 16.520 16.733 16.936 17.140 18.273	10 9 12 28 7 20 26 8 10 16 12 7 23 12 7	# 555555555555555555555555555555555555

1,13 found in method blanks

FORM I VOA-TIC

### VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX353	
-------	--

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.06

Sample wt/vol:

Lab File ID:

L24128.D

Level:

(low/med)

LOW

Date Received: 01/10/97

% Moisture: not dec. 16

Date Analyzed: 01/13/97

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

5.0 (g/mL) G

Soil Aliquot Volume: \_\_\_\_(uL)

Number TICs found: 3,1

CONCENTRATION · UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
-1. 2.	UNKNOWN UNKNOWN UNKNOWN	12.444 15.856 16.927	8 7 8	JB J JB
4. 5.				
7.				
10				
12. 13. 14.				
16. 17.				
18. 19. 20.				
21. 22. 23.				
24. 25. 26.				
27.				
29.				

1,3 found in method blanks

FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0021

YX354

EPA SAMPLE NO.

Lab Name: SWL-TULSA

SDG No.: YX327 SAS No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.07

Sample wt/vol:

1.0 (g/mL) G

Lab File ID: L24134.D

Level: (low/med)

LOW

Lab Code: SWOK Case No.: 25268

Date Received: 01/10/97

% Moisture: not dec. 21

Date Analyzed: 01/13/97

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: \_\_\_\_(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 30 28

CAS NUMBER	COMPOUND NAME	RT ======	EST. CONC.	Q =====
1.	UNKNOWN CYCLOALKANE	10.590	130	J
2.	Cyclohexane, trimethyl-	12.805	120	J
3.	UNKNOWN HYDROCARBON	13.103	130	J
4.	UNKNOWN	13.267	53	<del> </del>
5.	UNKNOWN	13.827	92	J
6.	UNKNOWN CYCLOALKANE	14.011	140 710	J
7.	UNKNOWN HYDROCARBON	14.253	710	J
8	UNKNOWN	14.359 14.475	760	J
9.	UNKNOWN	15.056	1400	- 1
10.	Benzene, ethyl-methyl-	15.163	2200	Т
11.	UNKNOWN	15.356	640	J
12.	Benzene, ethyl-methyl-	15.550	2600	j
13.	Benzene, trimethyl-	15.734	590	ا آ
14.	UNKNOWN UNKNOWN ALKYL BENZENE	15.889	2000	J
15.	Benzene, trimethyl-	16.006	1800	J
16. 17.	UNKNOWN ALKYL BENZENE	16.238	480	J
18.	UNKNOWN	16.316	880	J
19. 1120-21-4	Undecane	16.461	1000	NJ
20.	UNKNOWN ALKYL BENZENE	16.626	860	J
21.	UNKNOWN ALKYL BENZENE	16.830	380	J
<del>22.</del>	UNKNOWN	<del>- 16.917</del>	800	JB
23.	UNKNOWN	17.102	380	
24.	UNKNOWN ALKYL BENZENE	17.189	440	
25.	UNKNOWN	17.461	230	
26.	UNKNOWN	17.635	380	
27.	UNKNOWN	17.810	120	
28.	UNKNOWN	17.956	160	
29.	UNKNOWN	18.082	150	
30: 91-20-3	Naphthalene	<del>  18.382</del>	100	<del>  NJ</del>
		l	1	.

22 found in method blanks

30 semivolatile target analyte. FORM I VOA-TIC

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

**YX327** Contract: 68-D5-0021

ab: Name: SWL-TULSA

Case No.: 25268 SAS No.: Lab Code: SWOK

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: M4466.D

Level:

(low/med)

Date Received: 01/10/97

% Moisture:

decanted: (Y/N)\_\_\_\_

LOW

Date Extracted: 01/10/97

Concentrated Extract Volume:

1000(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.6

Number TICs found: 17 8

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1.	UNKNOWN ORGANIC ACID	3.585	3	<del></del>
	UNKNOWN	3.990	2	
3.	UNKNOWN	4.592	280	
4.	UNKNOWN	4.721	4	<del></del>
5. 110-43-0	2-Heptanone	4.859	42	J TR NJ
<del>- 6. 111-76-2</del>	Ethanol, 2-butoxy-	5.057	170	NJ-
<del>  7.</del>	UNKNOWN	5.235	4	NJ JB
8.	UNKNOWN	5.610	5	- JD
9.	UNKNOWN	5.670	. 4	J
10. 111-90-0	Ethanol, 2-(2-ethoxyethoxy)-	6.431	2	ŊJ
11.	UNKNOWN	6.767	3	J
12. 112-07-2	2-Butoxyethyl acetate	7.656	110	NJ
13. 95-16-9	Benzothiazole	9.633	2	NJ
14. 143-07-7	Dodecanoic acid	12.752	3	ŊJ
15.	UNKNOWN	15.573	3	<del></del>
16.	UNKNOWN	15.892	4	J
17.	UNKNOWN	16.031	8	J
18				
19.				
20.				
21.				
22				
23				
24.				
25.				
26.				
27.				
28.				
29.			·	
30.				
	·		<u> </u>	

10 unknown

laboratory artifact (phthalate)

7,8 found in SBLKI

1-7 elute before phenol (1st SVOA target analyte)

FORM I SV-TIC

EPA SAMPLE NO.

### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

**YX335** 

ab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268 SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.03

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: M4470.D

Level:

(low/med)

Date Received: 01/10/97

decanted: (Y/N)\_\_\_

LOW

Date Extracted: 01/10/97

Concentrated Extract Volume:

1000(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) N

рH: 7.5

Number TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1.	UNKNOWN	5.233 13.169	<u>5</u> 2	<del>JB</del> J
3	UNKNOWN ORGANIC ACID	13.169		
5.				
0 •				
8.				
9				
12.				
14.				
15.				
16.				
18.				
20.				
22.		·		
24.				
26.				
27.				
29.				
			l	ll

I found in SOLKI & elutes before phenol (1st SVOA target analyte)

Alkane Report for Sample :

X335

Page:

Conc.

Data file: m4470.d

Matrix: WATER

Estimated R.T. Compound CAS #

1 760-21-4 Pentane, 3 methylene-2 617-78-7 Pentane, 3 ethyl 3 4923-77-7 Cyclohexane, 1-ethyl-2-methyl-, cis-unknown 5.677

Soil: UG/KG Concentration Units: Water: UG/L

1-2 found in SBLKI 1 elutes before phenol (15+ SVOA target analyte)

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0021

**YX336** 

Lab Code: SWOK

Case No.: 25268 SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.04

Sample wt/vol: 1000

ab Name: SWL-TULSA

(g/mL) ML

Lab File ID: M4471.D

Level:

(low/med)

Date Received: 01/10/97

% Moisture:

decanted: (Y/N)\_

LOW

Date Extracted: 01/10/97

Concentrated Extract Volume:

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) N

pH: 6.2

1000(uL)

Number TICs found: 26, 5

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT ======	EST. CONC.	Q
1.	UNKNOWN ORGANIC ACID	3.624	4	<del></del> J
2. 68-12-2	Formamide, N,N-dimethyl-	3.713	<del>2</del>	NJ-
3.	UNKNOWN ORGANIC ACID	3.990	3	—
4:	UNKNOWN	4.602	380	<del></del>
5	-Acetoxypropanol unknown	4.730	6	
6. 110-43-0	2-Heptanone	4.869	66	NJ-
-7. 111-76-2	Ethanol, 2-butoxy-	5.077	230	NJ
	UNKNOWN	5.235	250	TB
8.		5.363	2	<del>JB</del>
<del>-9.</del>	UNKNOWN	5.620	5	3
<del>10.</del>	-Heptene, -methyl-			
11.	Ethanol, -[-(-ethoxyethoxy)e	6.441	4	J
12.	UNKNOWN ORGANIC ACID	6.777	3	J
13.	UNKNOWN	6.886	2	J
14.	-Heptanone, -methyl-	7.143	3	
15. 112-07-2	2-Butoxyethyl acetate	7.667	160	NJ
16. 1119-40-0	Pentanedioic acid, dimethyles	ter 8.310	2	NJ
17. 65-85-0	Benzoic Acid	8.616	3	NJ
18.	UNKNOWN ORGANIC ACID	8.676	2	J
19. 119-36-8	Methyl Salicylate	9.210	2	ŊJ
20. 95-16-9	Benzothiazole	9.636	7	ŊJ
20. 95-10-9 21 <del>85-44-9</del>	Phthalic anhydride unknown	10.645	3	ŊJ
	Podomonia orid	12.767	. 6	NJ
22. 143-07-7	Dodecanoic acid		3	J
23.	Benzene, -methyl(-methylet-	12.866	3	
<del>24. 85-44-9</del>	Phthalic anhydride	<del>15.581</del>	3	NJ.
25.	UNKNOWN	15.900	. 6	J
26.	UNKNOWN	16.040	11	J
27.				
28.				
29.				
30.				
~ ~ •				

11,23 unknown

laboratory artifact (phthalate) 24

8,10 found in SBLKI

1-9 elute before phenol (1st SVOA target analyte)

kane Report for Sample : K336

Page:

Data file : m4471.d Matrix :

CAS #	Compound	R.T.	Estimated Conc.
1 591 21 9	Cyclohexane, 1,3 dimethyl- unknown	5.679 6.440	3.70
112-36-7 2 291-64-5	Ethane, 1,1'-oxybis[2-ethoxy-] -Cycloheptane unknown	6.796	2.84
5 541 02 6 4 56762 00 6 5 629 92 5	Cyclopentasiloxane, decamethyl- Pentane, 2,2' oxybis- unknown Nonadecane unknown alkane	8.448 8.745 22.06	2.14 2.31 2.03

Concentration Units: Water: UG/L Soil: UG/KG

3 laboratory artifact (column bleed) & found in SBLKI

2/12/987

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0021

YX349

Lab Code: SWOK

Tab Name: SWL-TULSA

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: M4493.D

Level: (low/med)

LOW

Date Received: 01/10/97

% Moisture: 27

decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume:

500(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.9

Number TICs found: 33,30

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	I			
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		2 270	1000	
<del>- 1.</del>	UNKNOWN	3.378 4.288	6900	NJAB
<del>2. 123-42-2</del>	2-Pentanone, 4-hydroxy-4-met			
3. <del>489-39-4</del>	1H-Cycloprop[e]azulene, deca	11.929	860 640	NJ NJ
4. <del>483-77-2</del>	Naphthalene, 1,2,3,4-tetrahy	12.650	590	NJ
5. <del>-10544-50-0</del>	Sulfur, mol. (S8) unknown	12.690	930	J.
6.	UNKNOWN	14.155		NJ
7 <del>. 0-00-0</del>	(1H)2,3-Dihydroindene, 1,1,3	14.286	880	
8.	UNKNOWN	16.130	1700	Ĩ.
9.	UNKNOWN ORGANIC ACID	16.454	560	J
10.	UNKNOWN	16.970	2600	J
11.	Phenanthrene, -methyl(-met	17.750	9300	J
12. 78-42-2	Phosphoric acid, tris(2-ethy)	18.736	6000	ŊJ
13.	UNKNOWN PHTHALATE	<del>19.286</del>	<del>870</del>	J
14.	UNKNOWN	19.990	8600	J
15.	UNKNOWN	20.113	3000	J
16.	7-Benzo[]dipyran-prop unknown	21.679	1300	J
17.	7-Benzo[]dipyran-prop wknow	21.854	5500	J
18.	UNKNOWN	21.997	980	J J
19.	-Benzo[]dipyran-prop unknow	1 22.768	4600	J
20.	UNKNOWN	22.860	850	J
21.	UNKNOWN	23.025	1800	J
22.	UNKNOWN	23.200	3400	J
23.	Cholestanone, -dimethyl-,	23.251	8200	J
	UNKNOWN	23.303	2400	J
24.	1	23.477	15000	J
25.	UNKNOWN	23.663	3100	J
26.	UNKNOWN	23.724	25000	J
27.	UNKNOWN	23.807	7000	J
28.	UNKNOWN		6700	J
29.	UNKNOWN	23.920	5900	J
30.	UNKNOWN	24.033	5900	
·				l

23, 3,7 unknown

substituted naphthalene

substituted phenanthrene 11

Phosphoric acid, tris (2-ethylhexyl) 12

laboratory artifact (phthalate) 13 FORM I SV-TIC

found in SBLK2 2

elute before phenol (15+5VOA target analyte)

2/13/97

EPA SAMPLE NO.

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX349

ab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: M4493.D

Level:

(low/med) LOW

Date Received: 01/10/97

% Moisture: 27

decanted: (Y/N) N

Date Extracted:01/10/97

Concentrated Extract Volume:

7olume: 500(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N)Y

pH: 7.9

Number TICs found: 33.30

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 3. 4.	UNKNOWN UNKNOWN UNKNOWN	24.290 24.372 24.691	3800 3700 8400	J J
5. 6. 7.				
9. 10. 11.				
14. 15. 16.				
18. 19.				
21. 22. 23. 24. 25.				
26. 27. 28.				
30.				

Page:

Data file: m4493.d

Matrix: SOIL

			Estimated
CAS #	Compound	R.T.	Conc.
O.L.D	•		
		9.962	1003.12
\ <del>31295-56-4</del>	Dodecane, 2,6,11-trimethyl-		928.55
2 <del>3891-98-3</del>	Dodecane, 2,6,10-trimethyl-	11.06	
3 -629-62-9	<del>-Pentadecane-</del>	11.87	767.79
4 17081-50-4	Pentadecane, 2,6,10,13-tetramethyl-	13.91	713.36
5 <del>1112-66-9</del>	<u> Silane tetra-2-propenvl</u> UNKNOWY	16.06	446.41
φ <del>638-36-8</del>	Hexadecane, 2,6,10,14-tetramethyl- un know	un16.59	1844.66
7 <del>112-95-8</del>	Eicosane	17.20	1032.92
8 646-31-1	- Tetracosane	18.32	5381.83
	-Tricosane	18.85	7140.28
		19.66	3592.55
(O 646-31-1	- Tetracosane	19.84	6651.74
1 112-95-8	Eicosane	20.31	5423.28
12 <del>629-97-0</del>	Docosane (4 slabe 5 slab	20.43	1643.42
13 -6079-19-2	Cholestane, 4,5-epoxy-, (4.alpha.,5.alph	20.77	7759.64
14 <del>112-95-8</del>	- Eicosane -	20.87	1995.56
15	UNKNOWN ALKANE		997.15
16 6418-44-6	Heptadecane, 3-methyl-	21.10	3775.56
17 <del>112-95-8</del>	- Eicosane -	21.19	
18 -	UNKNOWN ALKANE	21.30	912.46
19 629-78-7	<del>- Heptadecane -</del>	21.61	5510.81
ac 629-94-7	- Heneicosane	22.04	1848.86
21 593-45-3	<del>Octadecane</del>	22.49	3361.80
	Octadecane, 1-bromo-	22.94	3753.35

Concentration Units: Water: UG/L Soil: UG/KG

13 unknown 1-4,7-12,14,16,17,19-22 unknown alkane

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX353

ab Name: SWL-TULSA

Contract: 68-D5-0021

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.06

Sample wt/vol:

Lab Code: SWOK

30.0 (g/mL) G

Case No.: 25268

Lab File ID: M4492.D

Level: (low/med)

LOW

Date Received: 01/10/97

% Moisture: 16

decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume:

500(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.2

Number TICs found: 9,1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		3.299	94	
1-1-	UNKNOWN			<u>J</u>
<del>2.</del>	UNKNOWN	3.388	350	<del>J</del>
3.	UNKNOWN	3.447	140	——
4. 141-78-6	Ethyl Acetate 3-Penten-2-one, 4-methyl-	3.714	140	NJB
5 <del>. 141-79-7</del>	2 Donton 2 one 4-mother	3.823	410	NJAB
5. 141-79-7	inmoved			<del>JB</del>
-6.	UNKNOWN	4.040		77.75
<del>7. 123-42-2</del>	2-Pentanone, 4-hydroxy-4-met	4.297	6500	NJAB
} <del>8.</del>	UNKNOWN	5.226	130	<del>JB</del>
9.	UNKNOWN	25.729	82	J
10.	01111101111			_
10.				
11.				
1 12.				
13.			·	
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13.		<del></del>		
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26.		<u> </u>		
27.		:		
28.		<del></del>		
29.				
30.				
1				

4,5,7,8 found in SBLK2

1-8 elite before phenol (1st SVOA target analyte)

### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX354

Tab Name: SWL-TULSA

Contract: 68-D5-0021

SDG No.: YX327

Lab Code: SWOK

Case No.: 25268

SAS No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.07

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

M4497.D

Level:

(low/med) LOW Date Received: 01/10/97

% Moisture: 21

decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume:

500(uL)

Date Analyzed: 01/17/97

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.6

Number TICs found: 23.18

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
-1.	UNKNOWN	3.370	1300	<del></del>
	UNKNOWN ORGANIC ACID	3.628	430	J
	UNKNOWN ORGANIC ACID	3.817	4600	<del></del>
<u> </u>	UNKNOWN ORGANIC ACID	4.244	380	<del>- J</del>
<del>5. 123-42-2</del>	2-Pentanone, 4-hydroxy-4-met	4.293	5400	NJAD
6.	UNKNOWN ORGANIC ACID	5.971	700	J
7. <del>95-36-3</del>	1,2,4-Trimethylbenzene	6.348	380	ŊĴ
8.	UNKNOWN	8.018	220	J
9.	Benzene, -tetramethyl-	8.636	280	J
10. 57-10-3	Hexadecanoic acid	15.727	1600	ŊJ
11. <del>203-64-5</del>	4H-Cyclopenta[def]phenanthre		690	ŊJ
12.	UNKNOWN	16.455	3800	J
13. <del>19407-28-4</del>	Phenanthrene, 1,2,3,4,4a,9,1		380	NJ
14.	UNKNOWN	16.809	570	J
15.	UNKNOWN	16.961	3600	J
	UNKNOWN	20.408	740	J
16.		20.798	800	J
17.	UNKNOWN	21.004	1400	J
18.	UNKNOWN <del>PAII</del>	21.004	1200	J
19.	UNKNOWN		1200	NJ
20. <del>192-97-2</del>	Benzo[e]pyrene unknown PAH	21.230		J
21.	UNKNOWN ORGANIC ACID	21.889	1900	J
22.	UNKNOWN <del>PAH</del>	23.032	790	J.
23.	UNKNOWN	23.526	1300	J
24				
25.				
26.				
27.				
28.				
29.				
30.				

unknown  $\Pi$ 

substituted phenanthrene

53 found in SBLK2

1-5 elute before phenol (1st SVOA target analyte)

354

Page: 1

Data file: m4497.d

Matrix: SOIL

•			Estimated
CAS #	Compound	R.T.	Conc.
	· · · · · · · · · · · · · · · · · · ·		
( 2001-09-2	Dodecane, 2,6,10-trimethyl-	11.05	315.45
2 31295-56-4	Dodecane, 2,6,11-trimethyl-	13.90	357.80
× 31233=30=4	Hexadecane, 2,6,10,14-tetramethyl-	14.66	555.58
	Cyclohexane, 1-ethyl-4-methyl-, cis-	15.30	354.00
4 4926-78-7		16.58	1098.56
5 <del>62</del> 9 <b>-94-7</b>	Heneicosane Ricasana	17.76	125.94
¥ 112-95-8	Eicosane	18.31	120.98
	Octadecane	18.84	133.52
8 <del>31295-56-4</del> 9 <del>630-01-3</del>	Dodecane, 2,6,11-trimethyl-	19.35	137.96
	—	19.84	140.67
(°) <del>638-68-6</del>	- Triacontane	20.31	2655.89
11 55320-06-4		20.76	2637.52
(2 <del>112-95-8</del>	- Eicosane -	21.18	1772.95
15 -112-95-8		21.49	1502.35
14 14982-53-7	- Cholestane	21.61	2860.83
15 -593-49-7	<del>- Heptacosane -</del>	22.03	1285.01
16 -544-85-4	- Dotriacontane (T) hand	22.47	3539.45
17 <del>36728-72-0</del>		22.66	2085.62
15	UNKNOWN -ALKANE -	22.93	2033.50
i4 - <del>630-01-3</del>		23.46	2417.90
ત્ર <b>ે <del>17312-55-9</del></b>	Decane, 3,8-dimethyl-	23.40	2417.90

Concentration Units: Water: UG/L Soil: UG/KG

4,14,17 unknown 1-3,5-13,15,16,19,20 unknown alkane TPO: [ ]FYI

[X] Attention

[ ]Action

Region 9

### ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25268 Memo #01	LABORATORY SWOK
	<del>_</del>
	SITE NAME Victoria Golf Course
	REVIEW COMPLETION DATE February 21, 1997
REVIEWER [ ] ESD [X] ESAT	REVIEWER'S NAME <u>Adriane Scheele</u>
NO. OF SAMPLES 4 WATER 3	SOIL OTHER
	VOA BNA PEST OTHER
1. HOLDING TIMES/PRESERVATION	_ 0 _ 0
2. GC-MS TUNE/GC PERFORMANCE	0 0
3. INITIAL CALIBRATIONS	0 0
4. CONTINUING CALIBRATIONS	<u>x</u> <u>x</u>
5. FIELD QC	<u>o x                                     </u>
6. LABORATORY BLANKS	<u>x</u> <u>x</u>
7. SURROGATES	<u> </u>
8. MATRIX SPIKE/DUPLICATES	0 0
9. REGIONAL QC	<u>N/A</u> <u>N/A</u>
10. INTERNAL STANDARDS	<u>o</u> <u>x</u>
11. COMPOUND IDENTIFICATION	0 0
12. COMPOUND QUANTITATION	<u> </u>
13. SYSTEM PERFORMANCE	0 0
14. OVERALL ASSESSMENT	<u>x</u> <u>x</u>

O = Data have no problems or problems that do not affect data quality.

X = Data are qualified due to minor problems.

M = Data are qualified due to major problems.

Z = Data are unacceptable.

N/A = Not Applicable

TPO ACTION: None.

TPO ATTENTION: (1) Several results for volatile and semivolatile target analytes are qualified as nondetected and estimated (U,J) due to contamination in laboratory blanks. (2) Several results for volatile and semivolatile target analytes are estimated (J) due to calibration problems. (3) Several results for semivolatile target analytes in one of the method blanks are estimated (J) due to a low internal standard response.

AREAS OF CONCERN: None.

In Reference to Case No(s).:
 25268 Memo #01

## Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #1

	Date of Call:	February 13, 1997
	Laboratory Name:	Southwest Labs of Oklahoma, Inc. (SWOK)
	Lab Contact:	Harry Borg
	Region:	9
	Regional Contact:	Adriane Scheele, ESAT/Lockheed
	Call Initiated By:	Laboratory <u>X</u> Region
	Sample Delivery Group (S Volatile and Semivolatil	DG) YX354 for e Analyses
Summa	ry of Questions/Issues Di	
1.	at a retention time of 1 volatile fraction of sam states that semivolatile be reported as TICs. Pl	orted as a tentatively identified compound (TIC 8.382 min. in Form 1E (page 100) for the ple YX354. Section 11.1.2.2 of Exhibit D-38/VO target compounds listed in Exhibit C are not to ease clarify why naphthalene, a semivolatile orted or submit a corrected Form 1E.
2.	method blank SBLK3 did n	nternal standard perylene-d <sub>12</sub> in semivolatile not meet the quality control (QC) requirements of Exhibit D-50/SVOA. Were the corrective tion 12.1.5.4 of Exhibit D-55/SVOA performed?
Summa	ry of Resolution:	
1.	Corrected Form 1E was re	eceived at ESAT by fax on February 20, 1997.
2.	n er/evox ginge the hlar	ot taken as per Section 12.1.5.4 of Exhibit ok in question (SBLK3) was the blank from sample insufficient sample to do a second reextraction. on the SDG narrative.

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy



# Contract Laboratory Program REGION 9/LABORATORY COMMUNICATION SYSTEM CSF COMPLETENESS EVIDENCE AUDIT PROGRAM Telephone Communication Summary Form

AUDIT NO.:	2/97/17	LAB CONTACT	: <u>Harry Borg</u>
	25268 Memo #01	LAB CODE:	SWOK
SDG NO.: _		LAB NAME:	Southwest Labs of Oklahoma, Inc.
FTLENAME:	25268M01.TCS	LAB LOCATIO	ON: Broken Arrow, OK

Summary of Questions/Issues Discussed:

The following items were noted during the audit of sample delivery group (SDG) YX354. Please note the corrections in your copy.

- Page numbers 1 through 16 and 17 through 18 are incorrectly listed in Sections 2 and 3, respectively, of Form DC-2-1. The auditor has manually corrected Form DC-2-1 with page numbers 1 through 15 and 16 through 18 for Sections 2 and 3, respectively.
- 2. An unnumbered page was found between pages 54 and 55. The auditor has labeled it as page 54A.
- 3. A handwritten SDG narrative which was not paginated was found after page 962 of the data package. The auditor has paginated the narrative as 963 through 965. The auditor has also included this narrative and page numbers to Section 10 of Form DC-2-4.

Summary of Resolution:

A laboratory response is not required.

Auditor ESAT/Lockheed

February 13, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9

301 Howard Street, Suite 970, San Francisco, CA 94\05-2241

Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO:

Rachel Loftin

Site Assessment Manager

States Planning & Assessment Office, SFD-5

THROUGH:

Rose Fong Kose

ESAT Regional Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Jack Berges 🏖 🖔

Team Manager

Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005 Work Assignment No.: 9-96-0-4 Technical Direction No.: 9604112

DATE:

February 10, 1997

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE:

Victoria Golf Course

SITE ACCOUNT NO.:

zzCERCLIS ID NO.:

CAD980818926

CASE NO.:

25218 Memo #02

SDG NO.:

YX341

LABORATORY:

American Technical & Analytical Services (ATAS)

ANALYSIS: Volatiles and Semivolatiles

SAMPLES:

14 Soil Samples (see Case Summary)

COLLECTION DATE:

December 9 and 10, 1996

REVIEWER:

Adriane Scheele, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Larry Marchin, TPO USEPA Region 7

TPO: [ ] FYI [X] Attention [X] Action

SAMPLING ISSUES: [ ]Yes [X] No

97-02-10-AS-01/25218M02.RPT



#### Data Validation Report

Case No.:

25218 Memo #02

Site:

Victoria Golf Course

Laboratory: American Technical & Analytical Services (ATAS)

Reviewer:

Adriane Scheele, ESAT/Lockheed

Date:

February 10, 1997

#### I. Case Summary

#### SAMPLE INFORMATION:

VOA and BNA Samples: YX339 through YX348, YX351, YX352, YX355, and

YX356

Concentration and Matrix:

Low Level Soil Volatiles and Semivolatiles Analysis:

> SOW: OLM03.2

Collection Date: December 9 and 10, 1996 Sample Receipt Date: December 11 and 13, 1996

Extraction Date: December 16, 1996

VOA Analysis Date: December 13, 16, and 17, 1996 BNA Analysis Date: December 27, 28, 30, and 31, 1996

FIELD QC:

Trip Blanks (TB): None Field Blanks (FB): YX331\*

Equipment Blanks (EB): YX330\* and YX332\* (\*See Additional Comments)

Background Samples (BG): YX343 through YX346 Field Duplicates (D1): YX339 and YX356 (D2): YX341 and YX355

#### METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLKDN: YX342, YX342MS, YX342MSD, YX343, YX351, and

YX352

VBLKDO: YX339, YX340, YX341, YX344 through YX348,

YX355, and YX356

VBLKDP: VHBLKDP

YX339 through YX442, YX442MS, YX442MSD, YX443 SBLKEZ:

through YX448, YX451, YX451DL, YX452,

YX452RE, YX455, and YX456

TABLES:

Analytical Results with Qualifications 1A:

1B: Data Qualifier Definitions for Organic Data

Review

#### TPO ACTION:

Quantitation limits for several semivolatile analytes in two samples are rejected (R) due to low internal standard area counts.

#### TPO ATTENTION:

(1) Several results are qualified as nondetected and estimated (U, J) due to contamination in method and storage blanks. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results in two samples are estimated (J) due to low internal standard area counts.

DL-Dilution; MS-Matrix Spike; MSD-Matrix Spike Duplicate; RE-Reanalysis; VHBLK-Storage Blank 97-02-10-AS-01/25218M02.RPT

#### SAMPLING ISSUES:

None.

#### ADDITIONAL COMMENTS:

\*Equipment blanks YX330 and YX332 and field blank YX331 were collected with the samples of this sample delivery group (SDG). The results for equipment blank YX330, collected on December 9, 1996, and field blank YX331 and equipment blank YX332, collected on December 10, 1996, are located in Case 25218 Memo #01, SDG YX323. Methylene chloride was detected in field blank YX331 and equipment blank YX332 at concentrations of 14  $\mu g/L$  (14  $\mu g/Kg$ ) and 5  $\mu g/L$  (5  $\mu g/Kg$ ), respectively. Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in equipment blank YX330 at concentrations of 0.5  $\mu g/L$  (17  $\mu g/Kg$ ) and 1  $\mu g/L$  (33  $\mu g/Kg$ ), respectively.

Acetone was detected in background sample YX343 at a concentration of 26  $\mu \mathrm{g}/\mathrm{Kg}$  .

The Tentatively Identified Compounds (TICs) found in the samples are reported on the Form 1Es, 1Fs, and in alkane reports included in this report. The user should note that the alkane report summarizes TICs which are alkanes. No TICs were detected in the volatile fraction of samples YX339 through YX342, YX344 through YX348, YX355, and YX356.

All method requirements specified in the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, have been met. This report was prepared according to the SOW and the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

BNA

#### II. Validation Summary

ACC	ebrapie/	Comment	Acceptable/	comment
HOLDING TIMES GC/MS TUNE/GC PERFORMANCE CALIBRATIONS	[YES] [YES] [NO]	[ ] [ ] [E]	[YES] [YES] [NO]	[ ] [ ] [F]
FIELD QC LABORATORY BLANKS	[NO]	[c]	[NO] [NO]	[D, I] [D]
SURROGATES MATRIX SPIKE/DUPLICATES INTERNAL STANDARDS	[YES] [YES] [YES]	[]	[YES] [YES]	[ ] [H]
COMPOUND IDENTIFICATION COMPOUND QUANTITATION	[YES] [YES]	[B]	[NO] [YES] [YES]	[A,G] [J] [B]
SYSTEM PERFORMANCE	[YES]	[ ]	[YES]	į

AOV

N/A = Not Applicable

#### III. Validity and Comments

- A. The quantitation limits for the following semivolatile target analytes are rejected due to low internal standard areas. The results are flagged in Table 1A.
  - 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine,
     4-bromophenyl phenyl ether, hexachlorobenzene, carbazole,
     benzo(b) fluoranthene, benzo(k) fluoranthene, benzo(a) pyrene,
     indeno(1,2,3-cd) pyrene, dibenz(a,h) anthracene, and
     benzo(g,h,i) perylene in sample YX351

 Butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, and chrysene in samples YX351 and YX352

bis(2-Ethylhexyl)phthalate in sample YX352

The internal standard areas for the samples listed above fell below the quality control (QC) advisory criteria, as shown below.

<u>Sample</u>	<u>Internal Standard</u>	<u>Area</u>	OC Limits
YX351	Phenanthrene-d <sub>10</sub> Chrysene-d <sub>12</sub>	20247 3104	46342-185368 12447-49788
	Perylene-d <sub>12</sub>	1665	6742-26966
YX352	Chrysene-d <sub>12</sub>	4798	12447-49788

The extremely low area counts reported for the internal standards indicate a severe loss of sensitivity. The results for the nondetected target analytes listed above are rejected.

Low area counts were observed in both the original and the dilution analyses of sample YX351. Sample YX352 was reanalyzed due to the low internal standard areas in accordance with SOW requirements. The results from the original analysis of sample YX352 are presented in Table 1A in order to minimize the number of rejected data points.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

- B. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.
  - All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

C. The detected results for the following volatile target analytes are qualified as nondetected and estimated due to laboratory, equipment, and field blank contamination. The results are flagged "U,J" in Table 1A.

Methylene chloride in all of the samples

Methylene chloride was found in field blank YX331, equipment blank YX332, laboratory method blanks VBLKDN, VBLKDO, and storage blank VHBLKDP (see Table 1A and Additional Comments for concentrations). The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result  $(\mathtt{U},\mathtt{J})$ . If the

sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

A laboratory method blank is laboratory reagent water or baked sand for solid matrices analyzed with all reagents, surrogates, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will also be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.

- D. The detected results for the following semivolatile target analytes are qualified as nondetected and estimated due to laboratory and equipment blank contamination. The results are flagged "U,J" in Table 1A.
  - Di-n-butylphthalate in samples YX339, YX341 through YX348, YX352, YX355, and YX356
  - bis(2-Ethylhexyl)phthalate in sample YX355
  - Di-n-octylphthalate in samples YX339, YX343, YX345, YX347, YX351, and YX352

Di-n-butylphthalate was found in laboratory method blank SBLKEZ and and equipment blank YX330. Di-n-octylphthalate and bis(2-ethylhexyl)phthalate were found in laboratory method blank SBLKEZ and equipment blank YX330, respectively. (See Table 1A and Additional Comments for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

E. The quantitation limits for the following volatile target analytes are estimated due to large percent differences (%Ds) in the continuing calibrations. The results are flagged "J" in Table 1A.

## LOCKHEED MARTIN

- 2-Butanone and bromodichloromethane in samples YX339, YX340, YX341, YX344 through YX348, YX355, YX356, and method blank VBLKDO
- trans-1,3-Dichloropropene in samples YX339, YX340, YX341, YX344 through YX348, YX355, YX356, method blanks VBLKDO, VBLKDP, and storage blank VHBLKDP

Percent differences of -26.0, +26.2, and -31.3 were observed for 2-butanone, bromodichloromethane, and trans-1,3-dichloropropene, respectively, in the continuing calibration performed December 16, 1996. A %D of -36.8 was also observed for trans-1,3-dichloropropene in the continuing calibration performed December 17, 1996. These values exceed the ±25.0% QC advisory validation criterion.

The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.

- F. The quantitation limits for the following semivolatile target analytes are estimated due to large %Ds in the continuing calibration. The results are flagged "J" in Table 1A.
  - Pyrene and di-n-octylphthalate in sample YX340

Percent differences of -25.3 and -28.4 were observed for pyrene and di-n-octylphthalate, respectively, in the continuing calibration performed December 31, 1996. These values exceed the  $\pm 25.0 \%$  QC advisory validation criterion.

- G. The detected results and quantitation limits for the following semivolatile target analytes are estimated due to low internal standard areas. The results are flagged "J" in Table 1A.
  - Hexachlorocyclopentadiene, 2,4,6-trichlorophenol,
     2,4,5-trichlorophenol, 2-chloronaphthalene, 2-nitroaniline,
     dimethylphthalate, acenaphthylene, 2,6-dinitrotoluene,
     3-nitroaniline, acenaphthene, 2,4-dinitrophenol, 4-nitrophenol,
     dibenzofuran, 2,4-dinitrotoluene, diethylphthalate,
     4-chlorophenyl phenyl ether, fluorene, 4-nitroaniline, and
     bis(2-ethylhexyl)phthalate in sample YX351
  - 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine,
     4-bromophenyl phenyl ether, hexachlorobenzene, carbazole,
     benzo(b) fluoranthene, benzo(k) fluoranthene, benzo(a) pyrene,
     indeno(1,2,3-cd) pyrene, dibenz(a,h) anthracene, and
     benzo(g,h,i) perylene in sample YX352
  - Pentachlorophenol, phenanthrene, anthracene, di-n-butylphthalate, fluoranthene, pyrene, and di-n-octylphthalate in samples YX351 and YX352

The internal standard areas for the samples listed above fell below the QC advisory criteria, as shown below.

Sample	<u>Internal Standard</u>	<u>Area</u>	OC Limits
YX351	Acenaphthene-d <sub>10</sub> Phenanthrene-d <sub>10</sub> Chrysene-d <sub>12</sub> Perylene-d <sub>12</sub>	26584 20247 3104 1665	30016-120064 46342-185368 12447-49788 6742-26966
YX352	Phenanthrene-d <sub>10</sub> Chrysene-d <sub>12</sub> Perylene-d <sub>12</sub>	24735 4798 3422	46342-185368 12447-49788 6742-26966

The detected results and quantitation limits for the samples listed above are considered quantitatively questionable. Where the results are nondetected, false negatives may exist.

H. The matrix spike result for 2,4-dinitrotoluene in QC sample YX342MS did not meet the criteria for accuracy specified in the SOW. The percent recoveries for 2,4-dinitrotoluene are presented below.

<u>Analyte</u>	YX342MS	YX342MSD	QC limits
	%Recovery	*Recovery	*Recovery
2,4-Dinitrotoluene	100	86	28-89

The results obtained may indicate poor laboratory technique, sample nonhomogeneity, or matrix effects which may interfere with accurate analysis. Although the recovery for 2,4-dinitrotoluene in QC sample YX342MS is above the QC limits, this recovery does not indicate an analytical deficiency.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

I. bis(2-Ethylhexyl)phthalate was detected in field duplicate sample YX341 at a concentration of 2300  $\mu g/Kg$  but was not detected in the associated field duplicate sample YX355. A relative percent difference (RPD) value was not calculated. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, sample nonhomogeneity, method defects, or poor sampling or laboratory technique. The effect on the quality of the data is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision.

- J. Although not detected in any associated blanks, acetone and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes found in the samples listed below may be artifacts.
  - Acetone in samples YX339 through YX344, YX346, YX347, YX348, YX352, and YX356
  - Diethylphthalate in samples YX339 through YX348, YX351, YX355, and YX356
  - Di-n-butylphthalate in sample YX351
  - Butylbenzylphthalate in samples YX341 and YX344
  - bis(2-Ethylhexyl)phthalate in samples YX340, YX341, YX343 through YX346, YX348, YX351, and YX356

#### ANALYTICAL RESULTS TABLE 1A

Case No.: 25218 Memo #02

Victoria Golf Course

Analysis Type:

Low Level Soil Samples

American Technical & Analytical Services (ATAS) Lab.:

for Volatiles

Reviewer: Adriane Scheele, ESAT/Lockheed Date:

February 10, 1997

Concentration in  $\mu g/Kg$ 

Station Location	SS-1-1	10		· SS-1-	20		SS-2-1	0		SS-2-2	20		SS-3-	10		
Sample I.D.	YX33	9 D	1	YX340		YX341 D2			YX34	2		YX343 BG				
Date of Collection	12/10/	96		12/10	/96		12/9/9	6	12/9/96				12/10/96			
Volatile Compound	Result	Va	Com	Result	Va	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	
Chloromethane	12 U	I		12 U	J		11 U			13 U	1		14 U	ı		
Bromomethane	12 U	1		12 L	)		11 U			13 U			14 U	1		
Vinyl chloride	12 U	<u> </u>		12 U	J		. 11 U			13 U			14 U			
Chloroethane	12 U	1		12 L	1		11 U			13 U			14 U			
Methylene chloride	27 U	40000000	c	35 L	0.0000000	C	33 U	0000000	С	16 U	J	С	18 U	J	C	
Acetone	6 L	J	BJ	4 L	J	BJ	3 L	J	BJ	43		J	26		J	
Carbon disulfide	12 U	1		12 L	J	*00000000000	11 U	10000000		13 U		500000000000000000000000000000000000000	. 14 U			
l, l-Dichloroethene	12 U			12 L			11 U			13 U			14 U			
1,1-Dichloroethane	12 U	10000000		12 U	:4000000	+00000000000000	11 U	0000000		13 U	000000		14 U	decessors		
1,2-Dichloroethene (total)	12 U	1		12 L			11 U			13 U	*******		14 U			
Chloroform	12 U	1000000	3000000000	12 U	2 2000000		11 U	2000000	1000000000000	13 U	40000000	15000000000	14 U	skoooood	00000000	
1,2-Dichloroethane	12 U	1		12 L	1		11 U			13 U			14 U			
2-Butanone	12 U	10000000	E	12 U	Access	E	11 U	10000000	E	13 U	0000000		14 U			
l,l,l-Trichloroethane	12 U			12 L			11 U			13 U			14 U			
Carbon tetrachloride	12 U			12 U	1	M.50000000000	11 U	1000000	AND CONTRACTOR	13 U	000000		14 U			
Bromodichloromethane	12 U		E	12 U		E	11 U	J	Е	13 U			14 U			
1,2-Dichloropropane	12 U	\$1000000		12 U	I Angenes	**********	11 U	0000000		13 U	lannoner.		14 U		dominana	
cis-1,3-Dichloropropene	12 U			12 U			11 U			13 U			14 U			
richloroethene	12 U	10000000	-00000000000	12 U	3000000	00000000000	11 U	Assessed 1		13 U		nonnonna.	14 U			
Dibromochloromethane	12 U			12 U			11 U			13 U			14 U			
1,1,2-Trichloroethane	12 U	10000000		12 U			11 U		.,	13 U			14 U			
Benzene	12 U			12 U			11 U			13 U			14 U			
rans-1,3-Dichloropropene	12 U	Services.	E	12 U	J	E	11 U	J	E	13 U			14 U	l		
Bromoform	12 U			12 U			11 U			13 U			14 U			
4-Methyl-2-pentanone	12 U			12 U			. 11 U			13 U			14 U			
2-Hexanone	12 U			12 U			11 U			13 U			14 U			
Tetrachloroethene	12 U	, , , , ,		12 U	·		11 U			13 U			14 U			
1,1,2,2-Tetrachloroethane	12 U			12 U			11 U			13 U			14 U			
Toluene .	12 U			12 U	<u> </u>		11 U			13 U			14 U			
Chlorobenzene	12 U			12 U			11 U			13 U			14 U			
Ethylbenzene	12 U		l	12 U	1		3 L	J	В	13 U	ĺ		14 U			
Styrene	12 U			12 U			11 U			13 U			14 U			
(ylene (total)	12 U			12 U			13			13 U			14 U			
															20200000	
Percent Solids	84 %			85 %			88 %			79 %			70 %			
			l												-kannananii	
								0.00000			estatuti täristä	postero (1900)		00000000	wadaudgii	
					lassa				99999999		10000000	888998999	988960000000000000000000000000000000000	10000	303000000	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

#### ANALYTICAL RESULTS TABLE 1A

25218 Memo #02

Victoria Golf Course Site:

Analysis Type:

Low Level Soil Samples

Lab.:

American Technical & Analytical Services (ATAS)

for Volatiles

Date:

Reviewer: Adriane Scheele, ESAT/Lockheed February 10, 1997

Concentration in  $\mu g/Kg$ 

Station Location	SS-3-2	20		SS-4-	10		SS-4-20			SS-5-	10		SS-5-20				
Sample I.D.	YX34	4 B(	G		YX345 BG		YX346 BG			YX34	7		YX348				
Date of Collection	12/10/	/96		12/10/	/96		12/10/	96		12/10/	/96		12/10	12/10/96			
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Va	Com	Result	Va	l Com	Result	Val	Con		
Chloromethane	12 U	J		12 U	J		12 U			12 U	J		12 1	ן			
Bromomethane	12 U	J		12 U	Ī		12 U			12 L	1		12 (	J			
Vinyl chloride	12 U	J	l	12 U	ŗ		12 U			12 U	]		12 U	إر			
Chloroethane	12 U	II		12 U	ı		12 U			12 U	j .		12 (	J			
Methylene chloride	<del> 1</del> 2-€	J-J-	-c-	12=U	) <b>–</b> J–	-с-	12-U	<b>_J</b> _	-c-	<del>13 </del> ₹	J_	-e-	144	J J	-с		
Accione	<del>- 4 - 9</del> 1	∤-J-	≖BJ=	12 U		-	4-L	7	-BJ-	5-1		<b>™B</b> J=	8-1	: <del> -</del> -J	<b>-B</b> 3		
Carbon disulfide	12 U	docesso	000000000000	12 U	<b>[</b>		12 U	0000000	0000000000	12 L	1		12 T	J			
1,1-Dichloroethene	12 U	1		12 U			12 U			12 U	t i		12 T	J			
1,1-Dichloroethane	12 U	40000000	************	12 U	4000000	000000000000000000000000000000000000000	12 U	49000000	000000000000000000000000000000000000000	12 U	skooooo	000000000000000000000000000000000000000	12 T	J			
1,2-Dichloroethene (total)	12 U	1		12 U	1		12 U			12 U	1		12 t	J			
Chloroform	12 U	45000000		12 U	40000000	000000000000	12 U	100,000,000		12 U	Morrodo	9,000,000,000	12 U	rolle second	0000000		
1,2-Dichloroethane	12 U	1		12 U			12 U			12 U			12 t	ון			
2-Butanone	12° U	1000000	E	12 U	1000000	E	12 U	0000000	E	12 U	4000000	E	12 โ	00.000000000000000000000000000000000000	E		
1,1,1-Trichloroethane	12 U			12 U			12 U			12 U	1		12 t	J			
Carbon tetrachloride	42\0" 12 U	100000		12 U	\$000000	000000000000	12 U	0000000		12 U	1.000000		12 U	10 00 00 00 00 00	********		
Bromodichloromethane 1.	1 M2 U	J	E	12 U	1	E	12 U	J	E	12 U		E	12 t	J	Е		
1,2-Dichloropropane	12 U	40000000	200000000000000	12 U		000000000000000000000000000000000000000	12 U	0000000	00000000000	12 U	400000	3-20-000-0000	12 <b>t</b>	x   0000000	14000000		
***************************************		1,,,,,,,		12 U			12 U			12 U	1		12 t	1			
Trichloroethene	12 U	\$2000000	100000000000000000000000000000000000000	12 U	\$000000	5000000000000	12 U	8000000	400000000000	12 U		300000000000000000000000000000000000000	12 U	o 10000000	0000000		
Dibromochloromethane	12 U	1		12 U			12 U			12 U	1		12 t	1			
1,1,2-Trichloroethane	12 U	1000000	000000000000000000000000000000000000000	12 U	9000000	500000000000	12 U	222233	50000000000	12 U	000000	36000000000	12 t	obsessed	-00000000		
Benzene	12 U	1		12 U			12 U			12 U	1		12 t	1			
rans-1,3-Dichloropropene	1 <b>2°</b> U	\$2000000	E	12 U	100000000	E	12 U	10000000	Е	` 12 U	1000000	E	12 L	alessace	E		
Bromoform	12 U			12 U	j		12 U			12 U			12 t	J			
4-Methyl-2-pentanone	12 U	1000000	***********	12 U	0000000	00000000000	12 U	0000000	000000000000000000000000000000000000000	12 U	4000000		12 U	J	AAAAAAA.		
2-Hexanone	12 U	1		12 U			12 U			12 U			12 t	1			
Tetrachloroethene	12 U	3555555	(2000)	12 U	0000000	500000000000000000000000000000000000000	12 U	0000000	68600000000	12 U	40000000	4000000000	12 U	abasasasa			
1,1,2,2-Tetrachloroethane	12 U	1		12 U			12 U			12 U			12 U	1			
<b>Foluene</b>	12 U	10000000		12 U	10000000	-00000000000000000000000000000000000000	12 U	4000000	0000000000	12 U	2000		12 U	o otrono			
Chlorobenzene	12 U	1		12 U			12 U			12 U			12 L	1			
Ethylbenzene	12 U	100000000		12 U	0000000	2002000000	12 U	5000000	85000000000	12 U	10000000	4000000000	12 U	<u> </u>	hosenes ··		
Styrene	12 U	1		12 U			12 U			12 U			12 <b>t</b>				
Xylene (total)	12 U	333333	500000000000	12 U			12 U	3333444	00000000000	12 U	000000	000000000000000000000000000000000000000	12 <b>L</b>	<u> </u>			
		0000000	92099999444		1000000	5,550,550,550	000000000000000000000000000000000000000	323333		*************	000000						
Percent Solids	81 %			85 %			80 %			80 %			82 %				
			100000000000000000000000000000000000000	000000000000000000000000000000000000000	333344	50000000000		0000000	1000000000000		000000	000000000000000000000000000000000000000					
		0000000	.00000000000		2002244		600000000000000000000000000000000000000								ļ		
	1										l	l					

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

## ANALYTICAL RESULTS TABLE 1A

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Analysis Type:

Low Level Soil Samples

Lab.: Reviewer: American Technical & Analytical Services (ATAS)

for Volatiles

Date:

February 10, 1997

Adriane Scheele, ESAT/Lockheed

Concentration in  $\mu g/Kg$ 

Station Location	SS-7-	10		SS-7-	20		SS-9-1	10		SS-10	-10		Meth	hod Bl	lank
Sample I.D.	YX35			YX35			YX35		2	YX35		1	i	KDN	
Date of Collection	12/9/9			12/9/			12/9/9			12/10		-			
Volatile Compound	Result	-	Com	Result	Va	Com	Result		Com	Result	Va	l Com	Result	Va	l Com
Chloromethane	12 U			15 U	J		12 U	+		12 L			10		
Bromomethane	12 U	j .		15 1	j		12 U			12 U	1		10	U	
Vinyl chloride	12 U	J		15 U	ן		12 U			12 U	J		10	U	
Chloroethane	12 U	1		15 T	3		12 U			12 L	<b>j</b>		10	U	
Methylene chloride	16*t	<b> −J</b> =	e	15=t	J <b>-J</b> -	-c-	12=U	-j-	-c-	32-t	J-J-	-c-		L J	-ве
Acetone	200			24	<del> </del>	J	12.U	-	324125	3-L	J.	-BJ≠	10=	<del>U</del>	
Carbon disulfide	12 U	u sacraca	000000000000000000000000000000000000000	15 U	0.000000		12 U	0000000	*************	12 U	5 4000000		10	U	
1,1-Dichloroethene	12 U	1		15 T	)		12 U			12 U	ı		10	U	
1,1-Dichloroethane	12 U	4000000	20000000000	15 U	okoooo	0.0000000000	12 U	annone.		12 U	okooooo	000000000000000000000000000000000000000	10	verd a versa	
1,2-Dichloroethene (total)	12 U	1	1	15 1			12 U			12 U			10		
Chloroform	12 U	4000000	3 200200000	15 U	0.000000		12 U	10000000	ļ	12 U	1000000	100000000000000000000000000000000000000	10	9000 0000000	0.00000000
1,2-Dichloroethane	12 U	1		15 L		1	12 U			12 U			10		
2-Butanone	12 U	Acres 100		15 U	olooooo		12 U	-00000000	E	12 U	Assesse	E	10	endermon	585856-580-54
1,1,1-Trichloroethane	12 U	1		15 L			12 U			12 U			10		
Carbon tetrachloride	12 U	0.000000		15 L	o <b>l</b> ococco		12 U	occocci	:0000000000	12 U	A000000	10.3000 (10.000)	10	ebb lacacións	: 1:07000000
Bromodichloromethane	12 U	1		15 L			12 U	J	E	12 U		E	10		
1,2-Dichloropropane	12 U	10000000		15 L	24000000		12 U	0000000		12 U	dannar.	 	10	acabaaaaaa	
Sis-1,3-Dichloropropene	12 U	1		15 L	1		12 U			12 U			10		
Dibromochloromethane	12 U 12 U	landada.		15 U	Moonook		12 U			12 U	- 2000000		10	and energy	
1,1,2-Trichloroethane	12 U 12 U			15 L			12 U	000000		12 U			10 1		
	12 U	0000000		15 U	skooooo		12 U	98888		12 U	0000000		10 1	000 0000000	
Benzene rans-1,3-Dichloropropene	12 U			15 L			12 U			12 U			10 1		
Bromoform	12 U	learne ann		15 U	940000000		12 U	J	Е	12 U	000000	E	10 1	opologopoc	
I-Methyl-2-pentanone	12 U 12 U			15 U	1		12 U			12 U			10 1		
2-Hexanone	12 U	00000000	`	15 U	4000000		12 U			12 U	locations.		10 1	2001/00/00/00	100000000
Fetrachloroethene	12 U			15 U			12 U 12 U			12 U			10.1		
,1,2,2-Tetrachloroethane	12 U	enetern.		15 U	Accessive		4444440000000000000000			12 U	latinopo	<b>.</b>	10 1	260 20000000	100000000
Toluene	. 30	3333366		15 U	1		12 U 12 U			, 12 U			10 1		
Chlorobenzene	12 U			15 U	docento.		666666666666			12 U			. 10 t	saakaanan	
Ethylbenzene	79	888888	393333333	15 U	******		12 U			12 U			10 1		
Styrene	12 U			15 U	4000000		12 U			12 U			10 (	poplarana	1000000000
(ylene (total)	190			15 U	1		12 U			12 U			10 1		
tylche (total)	190			13 0			12 U			12 U			10 (	J	100000000
			000000000000000000000000000000000000000		1000000										
Percent Solids	84 %			68 %			85 %			06.67			X774		
	04 70			U0 70			83 %			85 %			N/A		l
			Postación (disco)		1000000					,			j.		
					20000			200000			secessor	5500000000	 	35 3333636	0.0000000

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

Low Level Soil Samples

for Volatiles

#### ANALYTICAL RESULTS TABLE 1A

Analysis Type:

25218 Memo #02 Case No.:

Victoria Golf Course Site:

American Technical & Analytical Services (ATAS)

Lab.:

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in  $\mu g/Kg$ 

Sample I.D.	Metho VBLK		ank	CRQI					,				-		
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Va	Com	Result	Val	Com	Result	Val	Com
Chloromethane	10 U			10										1	
Bromomethane	10 U			10											
Vinyl chloride	10 U	ļ		10		·			<i>.</i>						
Chloroethane	10 U			10											
Methylene chloride	<b>X</b> 4 L 10 U	J	BC	10	J		******************	l							
Acetone				10											
Carbon disulfide 1,1-Dichloroethene	10 U 10 U	ereren.		10 10			<i>-</i>								
1,1-Dichloroethane	10 U			10			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								edeconomic
1,2-Dichloroethene (total)	10 U			10											
Chloroform	10 U			10					Ī						
1,2-Dichloroethane	10 U			10											
2-Butanone	<b>-</b> ∳0 ∪	J	E	. 10								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
1,1,1-Trichloroethane	10 U			10											
Carbon tetrachloride	10 U			10											
Bromodichloromethane	<b>_J</b> 0 U	J	E	10											
1,2-Dichloropropane	<b>1</b> 0 U			10											
cis-1,3-Dichloropropene	10 U			10											
Trichloroethene	10 U			10											
Dibromochloromethane	10 U			10											
1,1,2-Trichloroethane	10 U	00000000	constantings.	10											
Benzene	10 U			10											
trans-1,3-Dichloropropene	<b>7</b> 0 ∪		E	10	. Sousson										
Bromoform	10 U			10											
4-Methyl-2-pentanone	10 U		-	10	40000000	40000000000	000000000000000000000000000000000000000	0000000	0000000000	140000000000000000000000000000000000000		asanasana	."		
2-Hexanone	10 U			10											
Tetrachloroethene	10 U		90900000000	10	0500000	00000000000		0000000	00000000000			0000000000	*		e constante de la constante de la constante de la constante de la constante de la constante de la constante de
1,1,2,2-Tetrachloroethane	10 U			10											
Toluene	10 U		200000000000	10	0000000	000000000000	300000000000000000000000000000000000000	100.000.00	9092000000		0000000	000-10000000		cossissi	Andrewski
Chlorobenzene	10 U			10											
Ethylbenzene	10 U	:::::::	1004560000	10	1800000	5:33:33:36:44:4		(22/2000)			224244	00000000000	200000000000000000000000000000000000000	0000000	0000000000
Styrene	10 U			10											
Xylene (total)	10 U	3333333	2020202020	10	2022000	3334333333		1000000	200000000000000000000000000000000000000		2000000		100000000000000000000000000000000000000		0000000000
						, (2000)			100000000000000000000000000000000000000		::::::::::::::::::::::::::::::::::::::			55555550	999999999
					333333	, ,;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;						0.000000000		XXXXXXXXX	
								1883333							8000000000
	fiom in Table														

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

Low Level Water Blanks

for Volatiles

## ANALYTICAL RESULTS TABLE 1A

Analysis Type:

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in  $\mu g/L$ 

Sample I.D.	Metho VBLK		ank	Stora VHB			CRQ	Ĺ	,						
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Va	Com	Result	Val	Com	Result	Val	Com
Chloromethane	10 U	to deces	0000000000	10 U	and a service of		10								
Bromomethane	10 U			10 T			10								
Vinyl chloride	10 U	16000	********	10 U	9040000000	***********	10		000000000000				-	conconsc	a source or
Chloroethane	10 U		<i>!</i>	10 T			10	じ							
Methylene chloride	10 U	ararara.	acregosaco	<b>7</b> I	valence or a	BC	10	8-00000	0+0000000000			300000000000000000000000000000000000000	0.6.0000.0000.0000.00.00.0		S. initions.
Acetone	10 U			10 t			10								
Carbon disulfide	10 U	5555555	.250000000000	10 U	25 22222		10	200000	95000000000			300000000	000000-10000000000000000000000000000000	3-2000000	
1,1-Dichloroethene	10 U			10 L	.1		10								
1,1-Dichloroethane	10 U	Section 1	000000000000000000000000000000000000000	10 U	0.0000000		10	0-00000		P0000400000000000000000000000000000000	10000000				
1,2-Dichloroethene (total)	10 U			10 L			10								
Chloroform	10 U	ANTONIA.	2525252525	10 L	a <b>4</b> 0000000		10		1.0000000000000000000000000000000000000		0000000		055555555555555555555555555555555555555	100000000	Leecocococo
1,2-Dichloroethane	10 U			10 L			10								
2-Butanone	10 U	SOSSOSSI .	2000000000	10 L	0.000000	000000000000000000000000000000000000000	10	000000			10000000	3505-930-000			
1,1,1-Trichloroethane	10 U			10 1			10								
Carbon tetrachloride	10 U	arrena.	20200000000	10 C	antanana.	30000000000	10		30000000000						00000000
Bromodichloromethane	10 U			10 L			10								
1,2-Dichloropropane	10 U	2010220	A0000000000	10 L	o <b>1</b> 00000000	000000000000	10	0 000000	000000000000000000000000000000000000000		-0040000	********			İ
cis-1,3-Dichloropropene	10 U			10 L			10								
Trichloroethene	10 U	01558646	10.1000,4100.00	10 L	o <b>l</b> esenendo)	::::::::::::::::::::::::::::::::::::::	10	90 (1975)	10000000000	101040000000000000000000000000000000000	0000000	0000000000	<b>1</b> 000000000000000000000000000000000000	1	000000000
Dibromochloromethane	10 U			10 L			10								
1,1,2-Trichloroethane	10 U	2902002	20.40045555	10 U	Sections 5	100000000000000000000000000000000000000	10	01000000	***********	.00000000000000000000000000000000000000	-0000000				
Benzene	10 U			10 L			10								
trans-1,3-Dichloropropene	• 10 U	J	E	<b>J</b> 0 U	Section Control	E	10	6 0000000	toroouesees	1666666666666666666666	0000000				L
Bromoform	10 U			10 L			10								
4-Methyl-2-pentanone	10 U	500000000	20000000000	10 U	140000000	00000000000	10		0000000000				999000000000000000000000000000000000000		
2-Hexanone	10 U			10 L	1		10								
Tetrachloroethene	10 U	2000000	50000000000	10 U	skeepers.		10								l
1,1,2,2-Tetrachloroethane	10 U			10 1	1		10								
Toluene	10 U	3000000	900000000000	10 U	0.00000000	00000000000	10		00000000000000						
Chlorobenzene	10 U			10 U			10								
Ethylbenzene	10 U	10000000	20000000000	10 U	damen		10	<u>.</u>	<u></u>					İİ	
Styrene	ט 10			10 U			10								
Xylene (total)	10 U	5555555		10 U			10	ļ							ı
				50000000000000 1000 1000 1000 1000 1000		00000000000		<u></u>		V. 100.000				<b> </b>	
			0000000000			e de de la constanción de la constanción de la constanción de la constanción de la constanción de la constanción		<u></u>	destruction of the second				,		
300000000000000000000000000000000000000							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
								l i							

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

TABLE 1A

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Lab.:

American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

February 10, 1997 Date:

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentration	on in µg/	Kg
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Station Location	SS-1-10		SS-1-2		SS-2-1	-	SS-2-2	•	SS-3-1	-	SS-3-2		SS-4-1	-
Sample I.D.	YX339		YX34	-	YX34		YX342	=	YX343		YX34		YX345	
Date of Collection	12/10/9		12/10/	7	12/9/9		12/9/96		12/10/		12/10/	<del></del>	12/10/	· · · · · ·
Semivolatile Compound		Val Com	Result	Val Com	Result	Val Com		Val Com	Result	Val Com	Result	Val Com	Result	Val Com
Phenol	390 U	200000000000000000000000000000000000000	390 U	1 0000000 00000000000	380 U	1	420 U		470 U	000000000000000000000000000000000000000	410 L	Л	390 U	
bis(2-Chloroethyl)ether	390 U		390 U	character to be a second	380 U	dan market	420 U		470 U		410 L	1	390 U	
2-Chlorophenol	390 U	200000 0000000000	390 U	: buccoco beccescoco	380 U	[	420 U	000000000000000000000000000000000000000	470 U		410 U	J	390 U	
1,3-Dichlorobenzene	390 U		390 L	1	,380 U		420 U		470 U		410 L	1	390 U	
1,4-Dichlorobenzene	390 U	soccos ne sechnunen	390 U	J	380 U		420 U		470 U		410 U	<u>,                                    </u>	. 390 U	
1,2-Dichlorobenzene	390 U		390 L	J	380 U		420 U		470 U		410 L	<b>j</b>	390 U	
2-Methylphenol	390 U		390 U	, I	380 U		420 U		470 U		410 U	]	390 U	
2,2'-oxybis(1-Chloropropane)	390 U		390 L	<b>/</b>	380 U		420 U		470 U		410 L		390 U	
4-Methylphenol	390 U		390 U	<b>J</b>	380° U		420 U		470 U		410 U	]	390 U	
N-Nitroso-di-n-propylamine	390 U		390 L	1	380 U	1	420 U		470 U		410 L	1	390 U	
Hexachloroethane	390 U	200000 00 10 10 000000	390 U	J	380 U		420 U		470 U		410 U	,	390 U	
Nitrobenzene	390 U		390 L	<b>i</b>	380 U		420 U		470 U		410 L		390 U	
Isophorone	390 U		390 U	]	380 U		420 U		470 U		410 U	J	390 U	
2-Nitrophenol	390 U		390 L	J I	380 U		420 U		470 U		410 U	<b>j</b>	390 U	
2,4-Dimethylphenol	390 U		390 L	J	380 U		420 U		470 U		410 U	j l	390 U	
bis(2-Chloroethoxy)methane	390 U		390 L	J .	380 U		420 U		470 U		410 U	ı l	390 U	
2,4-Dichlorophenol	390 U		390 U	յ    .	380 U		420 U		470 U		410 U		390 U	
1,2,4-Trichlorobenzene	390 U		390 L	J I	380 U		420 U		470 U		410 U	i i	390 U	
Naphthalene	390 U		390 L	J	· 380 U		420 U		470 U		410 U	ı I	390 U	
4-Chloroaniline	390 U		390 L	1	380 U		420 U		470 U		410 U	1	390 U	
Hexachlorobutadiene	390 U		390 L	<u>, </u>	380 U		420 U		470 U		410 U	ı l	390 U	
4-Chloro-3-methylphenol	390 U		390 L	j l	380 U		420 U		470 U		410 U	l .	390 U	
2-Methylnaphthalene	390 U		390 L	J .	380 U	1	420 U		470 U		410 U		390 U	
Hexachlorocyclopentadiene	390 U		390 U	j	380 U		420 U		470 U		410 U		390 U	
2,4,6-Trichlorophenol	390 U		390 U	,	380 U		420 U		470 U		410 U		390 U	
2,4,5-Trichlorophenol	990 U		980 L	j	940 U		1000 U		1200 U		1000 U	ı	980 U	
2-Chloronaphthalene	390 U		390 U	<b>J</b>	380 U		420 U		470 U		410 U		390 U	
2-Nitroaniline	990 U		980 L	j	940 U		1000 U		1200 U		1000 U		980 U	
Dimethylphthalate	390 U		390 U	J	380 U		420 U		470 U		410 U		390 U	
Acenaphthylene	390 U		390 L	J	380 U		420 U		470 U		410 U		390 U	
2,6-Dinitrotoluene	390 U		390 L	J	380 U		420 U		470 U		410 U		390 U	
3-Nitroaniline	990 U		980 L		940 U		1000 U		1200 U		1000 U		980 U	

Station Location	SS-1-1	10		SS-1-2	Λ ·	SS-2-	10		SS-2-2		1	SS-3-1			SS-3-	20			
Sample I.D.	YX33		ļ	YX340			-10 41 D2		SS-2-2 YX342				_	,			_	SS-4-1	
Date of Collection	12/10/		1	12/10/9		12/9/			12/9/9			YX343 12/10/		J	YX34		j	YX34	
Semivolatile Compound	Result	Val	-	···· · · · · · · · · · · · · · · · · ·	Val Com	Result	Val	C	Result	<del></del>	<u></u>		T		12/10	<del></del>		12/10/	
Acenaphthene	390 U	Vail	Om	390 U	Vai Com	380		Com	420 U	<del></del>	Com	Result		Com	Result	+	Com	Result	Val Co
2,4-Dinitrophenol	990 U			488848888888888888888888888888888888888		14404440000000000000000	see leese probe		000000000000000000000000000000000000000	lacacaca	l	470 U	000000.0	60stas566	410 U	salasas a	le di le coni	390 U	
4-Nitrophenol	990 U			980 U 980 U		940 t 940 t			1000 U			1200 U	1		1000 U			980 U	
Pibenzofuran	390 U			390 U		380 1	89 0.6406 bi		1000 U 420 U	3000000		1200 U	64 Sec. 5.		1000 U	10000		980 U	
2,4-Dinitrotoluene	390 U			390 U		380 1						470 U	1		410 t			390 U	
Diethylphthalate	24 L		BJ	390 U 22 L	J BJ	23 1	20100000000	ВЈ	420 U		H	470 U	010000		410 U	100000		390 U	
4-Chlorophenyl phenyl ether	390 U		ומ	390 U	) BJ	A contract contract contract contract		ъJ	38 L	J	BJ	30 L	J	BJ	23 L	o recover	BJ	26 L	J B
Fluorene	390 U			500-00000000000000000000000000000000000		380 1	an daeana ka		420 U			470 U			410 U	albertoole		390 U	
4-Nitroaniline				390 U		380	-		420 U			470 U			410 U			390 U	
4,6-Dinitro-2-methylphenol	990 U			980 U		940 1	sickeeseed a		1000 U			1200 U			1000 U	8 2020	333.63838	980 U	
N-Nitrosodiphenylamine	990 L			980 U		940 1			1000 U			1200 U			1000 T	S Programs		980 U	
	390 U	a bassa salaa		390 U		380	2001/00/2000		420 U	1.000000		470 U			410 U	skaaaa		390 U	
4-Bromophenyl phenyl ether Hexachlorobenzene	390 L	1		390 U		380			420 U			470 U			410 U	de		390 U	
	390 U	100000000000000000000000000000000000000		390 U		380	50 <b>5</b> 0006666		420 U			470 U			410 L	desert a	3000000	390 U	
Pentachlorophenol Phenanthrene	990 U	!		980 U		940 1			1000 U	2500000		1200 U			1000 U			980 U	
Anthracene	390 U			390 U		54	90 0000000 u	В	420 U			470 U	8.45.883		410 U	ah saasa	0.0000000000000000000000000000000000000	390 U	
Carbazole	390 U			390 U		380 1	er successor		420 U			470 U	Ç		410 U	1		390 U	
NAME (NAME			390 U		380 3	an accepto		420 U			470 U			410 U	ار 1 - د د د		390 U		
Di-n-butylphthalate	390 L		D	390 U		380 1		D	420 U	J	D	470 U	J	D	410 L	J	D	390 U	J D
Fluoranthene	390 U			390 U		38 1		В	420 U	000000		470 U	idesidi.		410 L	J  1800-1881	- 	390 U	
Pyrene	390 L			390 U	J F	61	consumer of	В	420 U			470 U			410 L	1		390 U	
Butylbenzylphthalate	390 U	al assessables		390 U		32 1	san a san an la	BJ	420 U			470 U			22 L	,  J	BJ	<b>390</b> U	
3,3'-Dichlorobenzidine	390 L	100000000000000000000000000000000000000		390 U		380	· · ·		420 U			470 U			410 L	7		390 U	
Benzo(a)anthracene	390 U	1000000		390 U		380	30 00 00 00 L		420 U			470 U			410 U	descent		390 U	
Chrysene bis(2-Ethylhexyl)phthalate	390 U	000000000000000000000000000000000000000		390 U		38 1	L  J	В	420 U			470 U			410 C	4		390 U	I
Di-n-octylphthalate	390 U	dassas les		88 L	J BJ	2300		IJ	420 U	6000		61 L	J	BJ	40 L	100000	BJ	49 L	J B
Benzo(b)fluoranthene	390 U		D	390 U	J F	380 1	02/100000000000000000000000000000000000		420 U			470 U	J	D	410 C			390 U	J D
[886640000000]Co-600004000040000500000000000000000000000	390 U			390 U		380 1	201 000000000		420 U		388888888	470 U			410 U	4.000000	88:60:000	390 U	
Benzo(k)fluoranthene	390 U	and the same of th		390 U		380 1			420 U			470 U			410 L	7		390 U	
Benzo(a)pyrene	390 U	120000000000000000000000000000000000000		390 U		380 1		******	420 U			470 U			410 U	400000		390 U	
Indeno(1,2,3-cd)pyrene	390 U	,		390 U		380 1	var (Austriania)		420 U			470 U			410 L			390 U	
Dibenz(a,h)anthracene	390 U			390 U		380 1	ac concesso		420 U			470 U	2000	(0.000000)	410 U		3,453,000	390 U	
Benzo(g,h,i)perylene	390 U	9000		390 U		380 1			420 U			470 U			410 U			390 U	
Percent Solids	84 %			85 %		88 9	/o		79 %			70 %	L		81 %			85 %	L J.

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

TABLE 1A

Case No.: 25218 Memo #02

Site:

Victoria Golf Course

Lab.:

American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 10, 1997

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentration in  $\mu g/Rg$ 

Station Location	SS-4-20	,	SS-5-	10	55.5	20	50.5	10		20.5	•			••			
	1				SS-5-2		SS-7-			SS-7-2			SS-9-			SS-10-	
Sample I.D.	YX346		YX34		YX34	_	YX35	-	•	YX35				55 D2		YX350	
Date of Collection Semivolatile Compound	12/10/9	Val Com	12/10/	Val Com	12/10/	<del> </del>	12/9/9	Ť		12/9/9			12/9/			12/10/	
Phenol	Result '	vai Com	Result 410 U	<del> </del>	Result 400 U	Val Com	Result	Val	Com	Result	Va	Com	Result	<del></del>	Com	Result	Val Con
bis(2-Chloroethyl)ether	tasatta katatatatata as asatuata k		000000000000000000000000000000000000000	choocoood.cooocooooo	15454564566555566466666	000000000000000000000000000000000000000	9400			800		8 3000000000000000000000000000000000000	390 t	20 1. 0. 000 0. 1	(2013)	390 U	8.100.100.100
2-Chlorophenol	410 U 410 U		410 U	A	400 U	Authorities and decision	390 L	e gangaga		480 U			390 t			390 U	
1.3-Dichlorobenzene	200000 00000000000000000000000000000000		410 U		400 U	100000010000000000000000000000000000000	390 U	0.0000000	1.5555555	480 U	:bases		390 t	94:3,355.	18888888888888888888888888888888888888	390 U	3.463 03.334
1,4-Dichlorobenzene	410 U		410 L	1	400 L	butuation and recognist	390 L			480 U	1000000		390 I	4		390 U	
1,4-Dichlorobenzene	410 U 410 U		410 U	- 2000000000000000000000000000000000000	400 U	keessa kossaasaa	29 I		В	50 L	J	В	390 t	0.00000	x8300000.4	390 U	
en god den en en en elektrokken er den en did auf en av did anven en de en de de de en en en en en en en en en			410 L		400 L	1	390 L			480 U	1		390 l			390 U	
2-Methylphenol 2,2'-oxybis(1-Chloropropane)	410 U		410 U	\$350000 000000000	400 U	pasiasi <b>4</b> 0000000000	100 I	1000000	В	480 U		20000000	390 t	80444000	20403300	390 U	
4-Methylphenol	410 U 410 U		410 L		400 L		390 L	J)		480 U			390 I			390 U	
N-Nitroso-di-n-propylamine			410 U	. 200000.0000000000000	400 U		5900	¥ ::::::::		1900			390 t	o bassad		390 U	
Hexachloroethane	410 U 410 U		410 L	. 11000000 110000000000	400 U		390 L			480 U			390 l	of many		390 U	
Nitrobenzene	410 U		410 U	100000000000000000000000000000000000000	400 U		390 L	o <b>l</b> ogococy		480 U	2000		390 T	ol cased i	7888888798	390 U	
Isophorone	410 U		410 U 410 U	4-5-000-0-00000000000000000000000000000	400 L		390 L			480 U			390 l	.1		390 U	
2-Nitrophenol	410 U		410 C	120000000000000000000000000000000000000	400 U		390 L	1000000		480 U	200,0000		390 t	g4 0220000 s	15,655646	390 U	
2,4-Dimethylphenol	410 U		410 C	100000000000000000000	400 U		390 L	800000000		480 U			390 U	who seems		390 U	
bis(2-Chloroethoxy)methane	410 U		410 C	100000000000000000000000000000000000000	400 U		390 t	100000		480 U			390 U	6 266 A 60 A		390 U	
2,4-Dichlorophenol	410 U		410 U	2 0000000000000000000000000000000000000	400 U		390 L	20000000		480 U			390 l			390 U	
1.2.4-Trichlorobenzene	410 U		410 C	100000000000000000000000000000000000000	360666666666666666		390 L	10000000		480 U			390 t	100.00	.3333333	390 U	
Naphthalene	410 U		410 C	A PARAGONA POR CONTRACTOR OF THE PARAGONA PARAGO	400 U 400 U		390 L	4		480 U			390 l	A 1000000000000000000000000000000000000		390 U	
4-Chloroaniline	410 U		410 C	4000001000000000	300000000000000000000000000000000000000		900			1100			390 U	8 (co. 66)		390 U	
Hexachlorobutadiene	410 U		410 U	4	400 U 400 U		390 L	9000000		480 U			390 L	* ********		390 U	
4-Chloro-3-methylphenol	410 U		410 U	1,000,000,000,000,000,000	400 U		390 L	338888		480 U			390 t	aka sa da		390 U	
2-Methylnaphthalene	410 U		410 U	Processors	400 U		390 L	1900000		480 U			390 l	300000000000000000000000000000000000000		390 U	
Hexachlorocyclopentadiene	410 U		410 U	decessor becommon	400 U		250 L 390 L	10000000	B	460 L	J	В	390 L	al castada		390 U	
2,4,6-Trichlorophenol	410 U		410 U		400 U		390 L	7	G	480 U			390 L			390 U	
2,4,5-Trichlorophenol	1000 U		1000 U	1,0000000000000000000000000000000000000	1000 U		990 L	aborios (	200000000000	480 U			390 L	downto		390 U	
2-Chloronaphthalene	410 U		410 U	. 1000000000000000000000000000000000000	400 U		390 L	9000 00	G G	1200 U			980 L	speroreeds		980 U	
2-Nitroaniline	1000 U		1000 U	door-doorsed	1000 U		990 L	00000000	G	480 U 1200 U			390 U 980 U	al a construction		390 U	
Dimethylphthalate	410 U	::::::::::::::::::::::::::::::::::::::	410 U	.   00000000000000000000000000000000000	400 U		390 U	9 333555	G	480 U			980 L 390 L	1		980 U	
Acenaphthylene	410 U		410 U	Luci and assured the	400 U		390 L	drežo d	G	200000000000000000000000000000000000000			รองที่สามอย่องต่องตับให้บองตั้ง	/ 	Nicolai Nicolai	390 U	
2.6-Dinitrotoluene	410 U		410 U	2000 12 0000000000000000000000000000000	400 U		390 U	Jane 11	G	480 U 480 U			390 L 390 L	(1888) T		390 U	
3-Nitroaniline	1000 U		1000 U		1000 U		990 U	decorad	G	480 U 1200 U	Q2884		390 L 980 L		:335,688.Y	390 U 980 U	

Station Location	SS-4-2	20	SS-5-	10	SS-5-	20 .	SS-7-	10	SS-7	7-20	SS-9-	10	SS-10	)-10
Sample I.D.	YX346	6 BG	YX34	7	YX34	8	YX35	1	YX	352	YX35	5 D2	YX35	56 D1
Date of Collection	- 12/10/	96	12/10	/96	12/10	/96	12/9/9	96	12/9	/96	12/9/9	96	12/10	/96
Semivolatile Compound	Result	Val Con	Result	Val Com	Result	Val Cor	1 Result	Val Co	m Result	Val Com	Result	Val Com	Result	Val Con
Acenaphthene	410 U		410 U	J	400 L	,	58 I	J B	G 54	L J B	390 T	J	390 L	ار
2,4-Dinitrophenol	1000 U		1000 L	J I	1000 t	J ·	990 t	J J C	i 1200	U	980 t	, l	980 t	ادار
4-Nitrophenol	1000 U		1000 L	л I	1000 t	J	990 t	J J C	1200	U	980 t	J	980 L	
Dibenzofuran	410 U		410 L	J	400 U	J	390 t	, <b>,</b> (	i 40	L J B	390 t	J l	390 L	ال
2,4-Dinitrotoluene	410 U		410 L	,	400 L	J	390 L	J J C	480	U	390 U	T	390 L	1
Diethylphthalate	25 L	J BJ	36 1	J BJ	24 1	. J BJ	78 1	. J B(	GJ 480	บ	23 I	. J BJ	29 I	Ј Ј ВЈ
4-Chlorophenyl phenyl ether	410 U		410 L	J	400 U	7	390 L	ı ı c	480	U	390 U	1	390 L	
Fluorene	410 U		410 L	j	400 t	j l	140 L	. J B	G 98	L J B	390 T	j	390 t	J l
4-Nitroaniline	1000 U		1000 L	]	1000 U	J I	990 L	1 1 C	1200	U	980 U	of 20, 100 feet 11, 100 feet	980 L	
4,6-Dinitro-2-methylphenol	1000 U		1000 L	j l	1000 U	j l	990 L	RA	1200	U J G	980 t		980 t	er 1000000 becomes
N-Nitrosodiphenylamine	410 U		410 L	J I	400 U	J .	390 L	J R A	550	J G	390 U	j l	390 L	Jan. 1
4-Bromophenyl phenyl ether	410 U		410 L	j l	400 t	j l	390 t	RA	480	U J G	390 t	sissos editerrore	390 L	01.000.000.000.000
Hexachlorobenzene	410 U		410 L	J I	400 T	]	390 L	J R A	2, 12, 12, 12, 12, 12, 12, 12, 12, 12, 1		390 L	200000	390 L	
Pentachlorophenol	1000 U		1000 L	j l	1000 U	i l	390 L	. J B	G 1200	U J G	980 t	, l	980 t	ال
Phenanthrene	410 U		410 L	J	400 L	,	600	JC		J G	390 L	,	390 L	
Anthracene	410 U		410 L	J	400 L	rl l	64 L	. ј в	G 88	L J BG	390 t	er booddoodd boddu boddoodd	390 L	الر
Carbazole	410 U		410 L	,	400 t	,	390 L	I R A	480	UJG	390 L		390 U	Trongon o
Di-n-butylphthalate	410 U	J D	410 L	J D	400 L	J J D	270 L	J BO	GJ 480	U J DG	390 t	JD	390 U	J J D
Fluoranthene	410 U		410 L	J	400 L	j	120 L	J B	The second second second second		390 L	10000	390 U	
Pyrene	410 U		410 L	j l	400 t	ri I	200 L	J B	G 270	L J BG	390 t	J 1	390 U	ارار
Butylbenzylphthalate	410 U		410 U	J	400 t	, I	390 L	RA	480	URA	390 L	J I	390 U	J
3,3'-Dichlorobenzidine	410 U		410 L	J	400 L	d l	390 L	RA	480	URA	390 t	il I	390 U	ار
Benzo(a)anthracene	410 U		410 U	J I	400 L	,	390 L	R A	480	URA	390 L	,	390 U	J
Chrysene	410 U		410 L	j l	400 t	ı l	390 L	RA	480	URA	390 t	1 1	390 U	ار
bis(2-Ethylhexyl)phthalate	41 L	J BJ	410 L	J	47 L	J BJ		J G	J 480	URA	390 L	J DI	130 L	J BJ
Di-n-octylphthalate	410 U		410 L	J D	400 L	i l	390 L	J D	G 480	U J DG	390 t	i	390 U	j .
Benzo(b)fluoranthene	410 U		410 U		400 L	ıl l	390 L	RA	480	U J G	390 U		390 U	
Benzo(k)fluoranthene	410 U		410 L	j l	400 L	1	390 L	RA	480	U J G	390 t	i I	390 U	اار
Benzo(a)pyrene	410 U		410 U	ıl l	400 L	r	390 L				390 U		390 U	
Indeno(1,2,3-cd)pyrene	410 U		410 L	1 1	400 L		390 L	R A	ata <b>k</b> asanan sakan	966 (566, 56 <del>6, 566, 566, 5</del>	390 L		390 U	0.0000000000000000000000000000000000000
Dibenz(a,h)anthracene	410 U		410 U	]	400 L		390 U	4	anna saganasanna systems	var er var er 1990 versoor	390 U	ı l	390 U	1
Benzo(g,h,i)perylene	410 U		410 L	1 1	400 t	1 00000000 0000000	390 L	decised coole		882 (383) (400)	390 U		390 U	8 9000000000000000000000000000000000000
Percent Solids	80 %	]******	80 %	alar san alar san san san	82 %	Transcription of the second	84 %	1. 22.22.	68		85 %		85 %	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

Site:

Victoria Golf Course

Case No.: 25218 Memo #02

Lab.: ~

American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 10, 1997

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentrat:	lon i	ln μg	/Kg
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Sample I.D.	Metho SBLK	d Blank EZ	CRQI	L										,	2.00.0				· · · · · · · · · · · · · · · · · · ·
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val (	Com	Result	Va	l Com	Result	Va	Com	Result	Va	Com	Result	Vs	al Com
Phenol	330 U		330							1					1			1	-
bis(2-Chloroethyl)ether	330 U		330																
2-Chlorophenol	330 U		330	'								200 10 10 10		1 todds confidencial		1	3.190	100	- Ogo, subserved
1,3-Dichlorobenzene	330 U		330																
1,4-Dichlorobenzene	330 U		330										1	14444		1000000000		Section of	Adoctococco
1,2-Dichlorobenzene	330 U		330													400000			
2-Methylphenol	330 U		330									111 111 111						T	100000000
2,2'-oxybis(1-Chloropropane)	330 U		330																1
4-Methylphenol	330 U	d	330										100000000	ese estatuta e en estatue estatigat en integena		- anjasjasaa		T	hancocconne
N-Nitroso-di-n-propylamine	330 U		330																
Hexachloroethane	330 U		330		0								1	TO STATE OF STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, ST				- Approve	5000000000
Nitrobenzene	330 U		330																
Isophorone	330 U	1	330					_	-					ter filologica filologica a apriligiga is					200,000,000
2-Nitrophenol	330 U		330																
2,4-Dimethylphenol	330 U		330					****************						variorius	-000 (00000000	) nor 200000.	,		10000000000
bis(2-Chloroethoxy)methane	330 U		330																
2,4-Dichlorophenol	330 U		330							1	***************************************			******************	000000000000000000000000000000000000000	000000000000000000000000000000000000000	100000000000000000000000000000000000000	00000000	A 6000000000
1,2,4-Trichlorobenzene	330 U		330																
Naphthalene	330 U		330												010000	000000000	5 100 0 00000000 1000000000	000000000	×\$00000000000000
4-Chloroaniline	330 U		330																
Hexachlorobutadiene	330 U	1	330												van kanaanse	a secondore.		2000000	1000000000
4-Chloro-3-methylphenol	330 U		330																
2-Methylnaphthalene	330 U		330											annacasas nasanas araba	***	0.0000000000000000000000000000000000000	100774777000000000000000000000000000000	toponeces	40000000000
Hexachlorocyclopentadiene	330 U		330																
2,4,6-Trichlorophenol	330 U		330													he week see a		20,000,000,000	40000000000
2,4,5-Trichlorophenol	830 U		830																
2-Chloronaphthalene	330 U		330					e e e executaren 1451 1575/1575		and the second section		- 1000000	r 1000000000	***************************************	e cross-ush.	pubbangar 1949	100 F0000 0000 0000000	repeate; (i)	000000000000000000000000000000000000000
2-Nitroaniline	830 U		830																
Dimethylphthalate	330 U		330				********	-	1	1	Processors on Ada, prof.	- en <b>E</b> 20 206, y	240001100400	. 222200000000000000	Sept. 4-47	parkipaki beres	[mm:0015 m1000m007000	2 (2000)	1000000000
Acenaphthylene	330 U		330																
2,6-Dinitrotoluene	330 U		330	1000			var.rominis	and and an experience of the second	ar pai 2060	n 1999 M0000	Aurussassassanna tinn 1976	- Personni i	2010000000	use that test est a diffici	vo aprimi	in and the state	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	approprie	possesses;
3-Nitroaniline	830 U		830								100000000000000000000000000000000000000								

Sample I.D.	Metho SBLK	d Blank EZ	CRQ	L										
Semivolatile Compound	Result	Val Com	Result	Val Con	Result	Val Com	Result	Val Con	Result	Val Com	Result	Val Con	Result	Val Com
Acenaphthene	330 U		330											
2,4-Dinitrophenol	830 U		830											
4-Nitrophenol	830 U		830											
Dibenzofuran	330 U		330											
2,4-Dinitrotoluene	330 U		330											
Diethylphthalate	330 U		330											
4-Chlorophenyl phenyl ether	330 U		330											
Fluorene	330 U		330											
4-Nitroaniline	830 U		830											
4,6-Dinitro-2-methylphenol	830 U		830											
N-Nitrosodiphenylamine	330 U		330											
4-Bromophenyl phenyl ether	330 U		330											
Hexachlorobenzene	330 U		330											
Pentachlorophenol	830 U		830											
Phenanthrene	330 U	\.	330											
Anthracene	330 U		330											
Carbazole	330 U	.,	330					-   -						
Di-n-butylphthalate	18 L	J BD	330											
Fluoranthene	330 U		330											1,
Pyrene	330 U		330											
Butylbenzylphthalate	330 U		330											
3,3'-Dichlorobenzidine	330 U		330											
Benzo(a)anthracene	330 U		330											
Chrysene	330 U		330											
bis(2-Ethylhexyl)phthalate	330 U		330					1			,			
Di-n-octylphthalate	200 L	J BD	330											
Benzo(b)fluoranthene	330 U		330											
Benzo(k)fluoranthene	330 U		330											
Benzo(a)pyrene	330 U		330							and the second section of the section of the section o			***************************************	***************************************
Indeno(1,2,3-cd)pyrene	330 U		330											
Dibenz(a,h)anthracene	330 U		330				****************	100000		- posterior to the society	essantan yang ngagan (da)			
Benzo(g,h,i)perylene	330 U		330		1					de lesse		1000		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample



#### TABLE 1B

#### DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

### VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX343	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.11

Sample wt/vol:

5.0 (g/mL) G

Lab File ID:

D7840.D

Level:

(low/med)

Date Received: 12/11/96

% Moisture: not dec. 30

.Date Analyzed: 12/13/96

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_(uL)

Soil Aliquot Volume: (uL)

Number TICs found: & |

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q ====
1	Unknown	7.316	10	
2.	Unknown	8.801	11	
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1. VOA target analyte

FORM I VOA-TIC

OLM03.0

### VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.
Y)	351	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.05

Sample wt/vol:

5.0 (g/mL) G

Lab File ID: D7836.D

Level:

(low/med) LOW Date Received: 12/11/96

% Moisture: not dec. 16

Date Analyzed: 12/13/96

GC Column:DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 22 21

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
75 07 0		======	=========	=====
1. <del>75 07 0</del> 2. 110-54-3	Acetaldehyde Unknown	4.502 8.844	9.	NJ
3. 108 87 2	Cyclohexane, methyl Unknown		7	NJ NJ
43073663	Cyclohexane, 1,1,3 trimethyl-	15.041	14	NJ
5.	Unknown	15.358	17	J
6. 14676 29 0	Heptane, 3-ethyl-2-methyl-	15.517	8	NJ
7. 111-27-3	1-Hexanol	16.461	13	NJ
8.	Unknown	16.986	77	J
10. 6783 92 2	Unknown	17.181	78	J
11. <del>108 67 8</del>	Cyclohexane, <del>1,1,2,3</del> tetrame Benzene, <del>1,3,5</del> trimethyl-	17.879	120	NJ
12.	Unknown	18.182	370 120	NJ J
13. 95 63 6	Benzene, <del>1,2,4</del> trimethyl-	18.336	460	NJ
14. <del>99-87-6</del>	Benzene, 1 methyl 4 (1 methy	18.656	200	NJ
15. <del>470-82-6</del>	Eucalyptol Unknown	18.829	470	NJ
16. <del>135 01 3</del>	Benzene, 1,2 diethvl unKnown	19.049	350	NJ
17. <del>527-84 4</del>	Benzene, 1 methyl 2 (1 methy	19.381	350	ŊJ
18.	Unknown	19.625	55	JM
19. <del>1195-79-5</del>	Bicyclo[2.2.1] heptan 2 one,	19.921	120	NJ
20.	Unknown	20.236	32	J
21.	Unknown	20.414	51	J
22. <del>464 48 2</del> 23.	Bicyclo[2.2.1] heptan 2 one,	20.776	120	J
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30.				
		<del></del>		

2. common laboratory contaminant

17, 14 substituted benzene

FORM I VOA-TIC

22,19 unknown

OLM03.0

000121 AS, ESAT 1129197

### VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC.	, 4	Contract: 68-D5-0018,	YX352
Lab Code: ATAS	Case No.: 25218	SAS No.: SDG	No.: YX341
Matrix: (soil/water)	SOIL	Lab Sample ID:	17669.04
Sample wt/vol:	5.0 (g/mL) G	Lab File ID:	D7835.D
Level: (low/med)	LOW	Date Received:	12/11/96
% Moisture: not dec.	32	Date Analyzed:	12/13/96
GC Column:DB-624	ID: 0.53 (mm)	Dilution Facto	or: 1.0

Number TICs found: § 3

Soil Extract Volume: \_\_\_\_(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Soil Aliquot Volume: \_\_\_\_(uL)

CAS NUMBER	COMPOUND NAME	RT ====== 8.826	EST. CONC.	Q =====
2. 80-56-8 3. 0-00-0 4. 5. 91-20-3	Hexane .alphaPinene Unknown Unknown Naphthalene	17.130 17.819 19.888 21.129	9 10 9 12 14	UN UN U U UN
7				
11. 12. 13. 14. 15.				
16. 17. 18. 19.				
20. 21. 22. 23. 24.				
25. 26. 27. 28. 29.				
30.				

1. common laboratory contaminant

5. Semivolatile target analyte.
FORM I VOA-TIC

OLM03.0

000155

AS, ESAT 1/29/97

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX339

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.11

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: EE8137.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 16

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.7

Number TICs found: 14

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q ·
-1. 123-42-2		4 496	13000	
2.	UNKNOWN	5.208	150	JA
<del></del>	UNKNOWN	5.274	260	- JB
4 110 12 4	2,5 Hexanedione Unknown	5.274	94	UN UND
5	UNKNOWN	5.301	140	JB
6. 4436-75-3	3-Hexene-2,5-dione	5.562	140	NJ
7. <del>138-86-3</del>	Limonene Unknown	6.504	160	NJ
9	UNKNOWN	7.593	150	
9. 6938-94-9	Hexanedioic acid, bis(1-meth	10.052	96	NJ
.0.	UNKNOWN	13.682	100	J U
	UNKNOWN	14.835	ll Y	JB
2.	OINTNOWN	T4.035	92	-01
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9. Hexanedioic acid, bis(1-methylethyl) ester

1,3,5,8,11 found in SBLKEZ

1-4 elute before 1st semivolative target analyte, phenol.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX340

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Case No.: 25218 SAS No.: SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.08

Sample wt/vol:

Lab Code: ATAS

30.0 (g/mL) G

Lab File ID: EE8155.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 15

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y pH: 9.8

Number TICs found: 14

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

·	The same transfer and the same transfer and	r		<del></del> 1
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	=	======	==========	=====
1.	UNKNOWN	4.364	92	<del>- J</del>
<del>2. 123-42-2</del>	2-Pentanone, 4-hydroxy 4 met	4.484	11000	NJB
<del>3.111-76-2</del>	Ethanol, 2 butoxy	5.110	-87	NJ
<b>4</b> .	UNKNOWN	5 186	150	3
<del>5. 110-13-4</del>	2,5-Hexanedione	5.333	120	J
- 6	UNKNOWN	5.453	$\frac{120}{120}$	Je
7.	UNKNOWN	5.535		
			120	J
8.	UNKNOWN	5.649	85	J
9. <del>5989-54-8</del>	Cyclohexene, 1 methyl 4 (1 m	6.484	130	UN
<del>- 10</del>	UNKNOWN	7.552	140	<b>J</b> ₽
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.025	100	Тци
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9. unknown

11. Hexanedioic acid, bis (1-methylethyl) ester

2,6,10 found in SBLKEZ.

1-5 elute before 1st SVOA target analyte, phenol. FORM I SV-TIC

75 1131/97

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0018 Lab Name: ATAS, INC.

YX341

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.07

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

EE8119.D

Level:

(low/med)

Date Received: 12/11/96

% Moisture: 12

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/27/96

Injection Volume:

2.0(uL)

LOW

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.6

Number TICs found: 18 7

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	UNKNOWN		300	=====
2. 123 42 2		4.390	380	<del>-</del> <del>-</del> <del>-</del> <del>-</del> <del>-</del> <del>-</del> -
	2 Pentanone, 4 hydroxy 4 met	1.007	12000	<del>- 5</del>
3.	UNKNOWN	5.229	140	JB JB JB
4.	UNKNOWN	5.501	100	- ਹੁਲ
5.	UNKNOWN	5.578	110	JE
6. <del>-620-14-4</del>	Benzene, 1-ethyl-1-methyl-	5.828	120	ŊĴ
7. <del>138-86-3</del>	Limonene Unknown	6.526	270	NJ
8.	UNKNOWN	7.083	140	J
<del>9</del>	UNKNOWN	7.595	120	<del>JB</del>
10.	UNKNOWN	8.810	85	J
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.069	110	NJ
12. <del>57-10-3</del>	Hexadecanoic acid	13.514	250	NJ
<del>13. 27554-26-3</del>	1,2-Benzenedicarboxylic acid	16.646	230 270	NJ
14.	UNKNOWN	16.922	970	
15.	UNKNOWN			<del>- J</del>
16		<del>- 16.966</del>	250	<del>- J</del>
	UNKNOWN	<del>- 17.038</del>	190	<del>J</del>
17.	UNKNOWN	<del>- 17.115 </del>	<del>710</del>	JB
18.	UNKNOWN	<del>17.198</del>	1300	<del>JB</del>
19				
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23.	,			
24.			<del></del>	
25.		<del></del>		
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11. Hexanedioic acid, bis(1-methylethyl) ester

12 unknown organic acid

000352

13-18 common laboratory contaminants (phthalates) 2,3,4,9,17,18 found in SBLKET. FORM I SV-TIC

1-3 elute before 1st SVOA target analyte, phenol.

AS, ESAT 1131197 Alkane Report for Sample : 1X341 Page:

EE8119.d Data file :

Matrix : SOIL

CAS # Compound

	· · · · · · · · · · · · · · · · · · ·	•	
1.	541 02-6 Cyclopentasiloxane, decamethyl-	7.420	<del>170-</del>
		7.120	<del>- 170 -</del>
	629-59-4 Tetradecane unknown alkane	12.58	130
3.	<del>629-78-7 Heptadecane</del> unknown alkane	16.77	210

Concentration Units: Water: UG/L Soil: UG/KG

1. Laboratory artifact (column bleed) and found in SBLKEZ.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX342

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.15

Sample wt/vol: 30.0 (g/mL) G

Lab File ID:

EE8131.D

Level: (low/med)

Date Received: 12/11/96

% Moisture: 21

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume:

Date Analyzed: 12/30/96

Injection Volume:

2.0(uL)

LOW

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.2

500 (uL)

Number TICs found: 186

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

		· ·		<del></del> 1
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	<del> 2-Pentanone, 4 hydroxy 4 met</del>	4 500		=====
2.	Unknown	<del>1.302</del>	12000	NJB
2.	UIKIIOWII	5.205	150	## ## ## ##
3.	Unknown	5.357	140	<del>JB(</del>
4.	Unknown	<del>5.477</del>	160	
5. 4436-75-3	3-Hexene-2,5-dione	5.564	110	NJ
6. <del>611-14-3</del>	Benzene, 1-ethyl-2-methyl-	5.804	150	NJ
7.	Unknown	6.213	260	J
8. <del>-138-86-3</del>	<del> Limonene</del> Unknown	6.508	360	NJ
9. 6938-94-9	Hexanedioic acid, bis(1-meth	10.052	140	NJ
10.	Unknown	24.710	1400	ਹ
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12.	•			
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27.	-			
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6. substituted benzene

9. Hexancdioic acid, bis (1-methylethyl) ester

1,4 found in SBLKEZ

1-3 elute before 1st SVOA target analyte, phenol. FORM I SV-TIC

000394

Alkane Report for Sample : 1X342

Page:

Data file : EE8131.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1 124-18-5 2 541-02-6	Decane Unknown Alkane	6.076 7.058	200 130
9, 13475-75-7 5, 112-95-8 6, 629-97-0	-cycropencusiroxane, decamethyr- - <del>Pentadecane, 8-hexyl-</del> - <del>Eicosane</del> - <del>Docosane-</del>	7.406 13.71 14.27 14.81	170 180 450 740
7. 55124 79 3 8. 646 31 1 9. 7225 66 3	Heptadecane, 9 hexyl- Tetracosane Tridecane, 7 hexyl	15.33 15.82 16.30	2200 2100 1900
10. <u>13287 24 6</u> 11. <u>593 45 3</u> 12. <u>544 85 4</u> 13. <del>7225 64 1</del> 14. <u>630 06 8</u>	Nonadecane, 9 methyl Octadecane Dotriacontane Heptadecane, 9 octyl	16.76 17.20 17.67 18.21 18.80	1400 1200 770 1000 630

Concentration Units: Water: UG/L Soil: UG/KG

3. Laboratory artifact (column bleed) and found in SBLKEZ.

1,4-14 unknown alkanes

000006

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

_	EPA	SAM	PLE	NO	
•					

Lab Name: ATAS, INC. Contract: 68-D5-0018 YX343

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.11

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: EE8121.D

Level:

(low/med) LOW

Date Received: 12/11/96

% Moisture: 30

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/28/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 9.6

Number TICs found: & +

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======	=========	=====
1. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.526	16000	NJAB
2.	UNKNOWN	5.229	<del>170</del>	<u>At</u>
<del>3.110-13-4</del>	2,5 Hexanedione	5.376	110	<del>J</del>
4.	UNKNOWN	5.495	150	JB
5.	UNKNOWN	5.577	130	JB JB
6. <del>620 14 4</del>	Benzene, 1-ethyl-1-methyl- Cyclohexene, 1-methyl-4-(1-mexanedioic acid, bis(1-meth	5.828	110	NJ
7. <del>5989-54-8</del>	Cyclohexene, 1-methyl-4-(1-m	6.526	290	NJ
8. 6938-94-9	Hexanedioic acid, bis(1-meth	10.064	130	NJ
9.			230	
10.				
11.				
12.		<del></del>		
13.				
14.				
15		<del></del>		
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26.		<u></u>		
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30.				
30	1			

7. unknown

8. Hexanedioic acid, bis(1-methylethyl) ester 1,4 found in SBLKEZ
1-3 elute before 15+ SVOA target analyte, pheno1. 1,4 found in SBLKEZ

FORM I SV-TIC

000429

Alkane Report for Sample : YX343

Page: 1

EE8121.d Data file :

Matrix (: SOIL

CAS #

Compound

R.T.

Estimated Conc.

Decane Unknown alkane

Cyclopentasiloxane, decamethyl

110

Concentration Units: Water: UG/L

Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKEZ.



#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX344

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

500 (uL)

Lab Sample ID: 17669.10

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

EE8120.D

Date Received: 12/11/96

Level: (low/med)

decanted: (Y/N) N

Date Extracted: 12/16/96

% Moisture: 19 Concentrated Extract Volume:

Date Analyzed: 12/27/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.7

Number TICs found: 13 37

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	_
CAS NUMBER	COMPOUND NAME	K1	ESI. CONC.	Q
- 1 123 42 2		=======	_=========	=====
-,	2 Pentanone, 4 hydroxy 4 met	4.521	11000	NJAB
2.	UNKNOWN	3.220	120	JE JB
3.	UNKNOWN	5.294	-240	JB`
- 4. 110 13 4	2,5 Hexanedione	5.381	82	· J
5.	UNKNOWN	5.501	120	JB
6. <del>620 14 4</del>	Benzene, 1 ethyl 3 methyl	5.827	110	NJ
7.	UNKNOWN	6.236	91	J
8. <del>138-86-3</del>	Timopopo Historia	6.525		_
9.	Limonene unknown		240	ŊJ
	UNKNOWN	7.081	120	J
10.	UNKNOWN	7.604	120	<del>- JB</del>
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.065	120	NJ
12. <del>57-10-3</del>	Hexadecanoic acid	13.513	120	NJ
13.	UNKNOWN	13.704	97	J
14.	,			.~
15	<del></del>			
16				<del></del>
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J J .				

6. Substituted benzene

11. Hexancdioic acid, bis (1-methylethyl) ester

12 unknown organic acid

1,3,5,10 found in SBLKEZ

1-4 elete before 1st SVOA target analyte, phenol.

000452

OLM03.0 AS, ESAT 112/11/2

Arkane Report for Sample : 1X344

Page:

Data file : EE8120.d

Matrix : SOIL

**Estimated** CAS # Compound R.T. Conc. -Decane-Unknown alkane -Cyclopentasiloxane, decamethyl 6.094 85 7.419 200

Concentration Units: Water: UG/L

Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKET.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX345

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Sample wt/vol:

Lab File ID:

EE8123.D

Level:

(low/med)

30.0 (g/mL) G

Date Received: 12/11/96

% Moisture: 15

decanted: (Y/N) N

Date Extracted: 12/16/96

Lab Sample ID: 17669.13

Concentrated Extract Volume:

Date Analyzed: 12/28/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 9.2

500 (uL)

Number TICs found: 12 9

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42-2	2 Pentanone, 4 hydroxy 4 met	4.526	8800	A NJ
2.	UNKNOWN	5.228	130	- JE
3:	UNKNOWN	5.495	150	<del>JB</del> ` JB(
4.	UNKNOWN	5.577	120	JR
5. <del>622-96-8</del> 6. <del>5989-54-8</del>	Benzene, 1-ethyl-1-methyl- Cyclohexene, 1-methyl 4 (1-m	5.822	100	ŊJ
7.	UNKNOWN	6.526 7.076	240	ŊJ
8.	UNKNOWN	7.616	140 200	J BL
9. <del>1526-17-6</del>	X-Fluoro-K-nitrophenol	7.763	94	J
LO. 6938-94-9	X-Fluoro-X-nitrophenol Hexanedioic acid, bis(1-meth	10.066	120	NJ
11.	UNKNOWN	11.643	84	J
L2. <del>57 10-3</del>	Hexadecanoic acid	13.512	92	ŊĴ
L3				
4				
L5.				
L6.				
L7.				
18.		· .		
L9.				
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				<del></del>
23. 24		<del></del>	<u> </u>	<del></del>
5.				
26.				<del></del>
7.			*	
28.				
29.				
30.				<del></del>

6. unknown

10 Hexanedioic acid, bis(1-methylethyl) ester

12. unknown organic acid

000481

1,3 found in SBLKEZ.

1-2 elute before 1st SVOA FORM I SV-TIC pheno1.

OLM03.0 18, ESAT 112/197 Arkane Report for Sample : 1X345

Page:

EE8123.d Data file :

Matrix : SOIL

CAS # Compound R.T. Conc	, •
1. <del>-121-18-5 Decane</del> 6.094	100
3 541 02 6 Cyclopentagiloxane, decamethyl 7.419	190
3. <del>112-95-8 Eicosane 16.77</del>	350
4. <del>629-99-2 Pentacosane</del> 17.22	480
	430
/ ===== = = = = = = = = = = = = = = = =	.100

Concentration Units: Water: UG/L Soil: UG/KG 2. Laboratory artifact (column bleed) and found in SELKEZ 1,3-6. unknown alkanes

800000

AS, ESAT 1/31/97

EPA SAMPLE NO.

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX346

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.12

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: EE8122.D

Level: (1

(low/med) LOW

Date Received: 12/11/96

% Moisture: 20

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

Volume: 500(uL)

Date Analyzed: 12/28/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.1

Number TICs found: 127

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

1	<del></del>			<del></del> ,
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=======================================		=======	=======================================	=====
<del>-1. 123-42-2</del>	2-Pentanone, 4 hydroxy 4 met	4.538	12000	NUAB
2.	UNKNOWN	5.223	150	At -
<del>3.110-13-4.</del>	2,5-Hexanedione	<del>- 5:376</del>	100	J
4.	UNKNOWN	5.496	200	JB
5.	UNKNOWN	5.578	140	J18 ∣
6.	UNKNOWN	5.697	110	J)
7. 620 14 4	Benzene, 1-ethyl-%-methyl-	5.823	120	NJ
8. 138 86 3	Limonene Unknown	6.521	280	NJ
9.	UNKNOWN	7.077	170	J
10.	UNKNOWN	7.606	160	<del>JB</del>
11. <del>1526-17-6</del>	P-Eluoro-K-nitrophenol	7.764	83	NJ
12. 6938-94-9	%-Fluoro-6-nitrophenol Hexanedioic acid, bis(1-meth	10.007		
12. 6938-94-9	Hexanedioic acid, bis(1-meth	10.067	120	NJ
13				
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28.		<del></del>		
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		-		

12. Hexanedioic acid, bis(1-methylethyl) ester 1,4,10 found in SBLKET

1-3 elute before 1st SVOA target analyte, phenol.

000513

Arkane Report for Sample : 1X346

Data file: EE8122.d

Matrix : SOIL

CAS #

Compound

1. 124-18-5 Decane Unknown alkane

110

2.541 02 6 Cyclopentasiloxane, decamethyl

Concentration Units: Water: UG/L

Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKET.

力多

000009

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX347

Lab Name: ATAS, INC.

Contract: 68-D5-0018

EPA SAMPLE NO.

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.14

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

EE8130.D

Level:

(low/med) LOW Date Received: 12/11/96

% Moisture: 20

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

500(uL)

Date Analyzed: 12/30/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 9.3

Number TICs found: 127

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.509 5.207	10000	NJB
<del>2.</del> <del>3. 110 13 4</del>	- 2,5 Hexanedione	5.359	190 96	ਹੋਣ 
5. 6.	Unknown Unknown Unknown	5.479 5.561 5.730	250 130 94	JB JB J
7 <del>. 611-14-3</del> -8. <del>138-86-3</del>	Benzene, 1 ethyl 2 methyl Limonene Unknown	5.806 6.505	180 420	NJ NJ
9. 10. 11. 6938-94-9	Unknown Unknown Hexanedioic acid, bis(1-meth	7.574 9.518 10.053	160 99 140	JI J NJ
12. <del>57 10 3</del> 13.	Hexadecanoic acid	13.498	140	NJ
15.				
16				
19. 20.				
21. 22.				
23.				
25				
28.				
30.				

7. substituted benzene

11. Hexanedioic acia, bis(1-methylethyl) ester

unknown organic acid

1,4,9 found in SBLKEZ

FORM I SV-TIC 1-3 elite before 1st SVOA target analyte, phenol. 000539

OLM03.0 AS, ESAT 1101197 Arkane Report for Sample : 1X347

Page:

Data file : EE8130.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1. 124 18 5 Decane 2. 1120 21 4 Undecane	unknown alkane unknown alkane	6.073 7.061	.200
	asiloxane, decamethyl-	7.405	240

Concentration Units: Water: UG/L

Soil: UG/KG

3. Laboratory artifact (column bleed) and found in SBLKEZ. for ((S/a)

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX348

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.10

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: EE8136.D

Level:

(low/med) LOW

Date Received: 12/13/96

% Moisture: 18

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/30/96

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.3

Number TICs found: 12 6

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	,	1	,	
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=======================================	=======================================	=======	=========	=====
<del>-1.</del>	Unknown	4.349	220	J
-2.123422	2 Pentanone, 4 hydroxy 4 met	4.501	13000	NJB
<del>-3.</del>	UNKNOWN	5.209	140	ALN PER
<del>4.110-13-4</del>	2,5 Hexanedione	5.356	89	NJ
5.	UNKNOWN	5.476	120	<del>JB</del>
6. <del>4436-75-3</del>	3 Hexene 2,5 dione Unknown	5.557	100	ПJ
7.	UNKNOWN	5.672	87	J
8. <del>138 86 3</del>	<del>Limonene</del> UNKNOWN	6.505	( 180	NJ
9.	UNKNOWN	7.061	100	J.
10.	UNKNOWN	7.581	99	- JB
11. 6938-94-9	Hexanedioic acid, bis(1-meth		96	NJ
12. <del>57 10 3</del>	Hexadecanoic acid	13.496	140	NJ
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29.				
30.				

11. Hexanedioic acid, bis (1-methylethyl) 12. unknown organic acid 2,5,10 found in SBLKEZ

113/197

000564

1-4 elute before 1st SVOA target analyte, phenol. FORM I SV-TIC

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX351

Lab Name: ATAS, INC.

Contract: 68-D5-0018

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.05

30.0 (g/mL) G

Case No.: 25218

Lab File ID: EE8117.D

Sample wt/vol:

Lab Code: ATAS

Level:

(low/med)

Date Received: 12/11/96

% Moisture: 16

decanted: (Y/N) N

Date Extracted:12/16/96

Concentrated Extract Volume:

500(uL)

Date Analyzed: 12/27/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.4

Number TICs found: 24 21

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

1				<del></del> 1
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	=======================================	=======		=====
-1.107-92-6	Butanoic acid	4:345	5200	<del>NJ</del>
2. 123 42 42	2-Pentanone, 4-hydroxy 4-met	4.558	27000	A NJ
<del>3.</del>	UNKNOWN	5.065	6300	<del>- J</del>
4. 80 56 8	.alpha. Pinene Unknown	5.573	6900	NJ
1 5.	UNKNOWN	5.835	3700	J
6. <del>95-36-3</del> -	1,2,4 Trimethylbenzene	6.197	5600	ŊĴ
7. 13466-78-9	3-Carene	6.361	12000	ŊJ
8. 99-87-6	Benzene, 1-methyl-4-(1-methy	6.492	5800	ŊJ
9. 5989 54 8	Cyclohexene, 1 methyl 4 (1 m	6.542	5400	NJ
10. 470-82-6	Eucalyptol	6.619	7200	NJ
10. 4/0-82-8	UNKNOWN AROMATIC	6.745	3200	J
,				NJ
	3-Cyclohexene-1-methanol, .a	8.150	10000	
13. <del>99-94-5-</del>	Benzoic acid, 4-methyl-	8.854	3300	ŊJ
14. 475-20-7	1,4 Methanoazulene, decahydr	10.181	4800	NJ
15. <del>489 39 4</del>	H Cycloprop[e]azulene, deca	10.374	11000	NJ
16. <del>39029-41-9</del>	Naphthalene, 1,2,3,4,4a,5,6,	10.584	4000	J
17. <del>21747-46-6</del>	H-Cycloprop[e]azulene, 1a,2	10.771	7400	NJ
18. <del>483-76-1</del>	Naphthalene, 1,2,3,5,6,8a-he	10.904	5100	NJ
19. <del>1453 06 1 </del>	Benzenebutanoic acid, 2,5-di	11.147	6100	J
20.	UNKNOWN	11.501	3600	Ĵ
21. <del>57-10-3</del>	Hexadecanoic acid	13.602	5800	NJ
22.	UNKNOWN	15.279	3900	J
23.	UNKNOWN	15.751	5600	JВ
24.	UNKNOWN	16.155		J
25.	UNKNOWN	10.133	3100	J
26.				·
27.				
28.				
29.			•	
30	,			
1-3 elute before 15	+ SVOA target analyste, dreno	1.		
9 3	Ha I have the last of	·	· · · · · · · · · · · · · · · · · · ·	

8. Bentene, methyl (methylethyl)

15, 14,9. unknown

000589

12. 3-Cyclonexene-1-methanol, alpha., alpha. 4-trimethyl- 000589
18, 17, 16. Substituted naphthalene unknown polynuclear aromatic hydrocarbon

FORM I SV-TIC

OLM03.0 HS, ESAT

19. unknown 21. unknown organic acid

112/197

Arkane Report for Sample : 1X351 Page:

Data file : EE8117.d Matrix : SOIL

Estimate Conc.

CAS #

Compound

R.T.

		'	UNKNOWN	ALKANE
124	18	-5-	<del>Decane</del>	1
1120	21	4	- Undecand	_

5.742 6.109 7.095 8.017 3200 4700

Dodecane (,

8400

Concentration Units: Water: UG/L Soil: UG/KG

000013

AS, ESAT 1/31/97

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX352	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.04

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

EE8116.D

Level:

(low/med)

Date Received: 12/11/96

% Moisture: 32

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume:

Date Analyzed: 12/27/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.2

500 (uL)

Number TICs found: 12/2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.545	21000	NJAB
2.	UNKNOWN	5.831	2300	
3.	UNKNOWN	6.531	2600	.т l
4. 470-82-6	Eucalyptol	6.597	1600	NJ
5.	UNKNOWN	6.920	2100	J
6.	UNKNOWN	7.353	2000	J
7. 98-55-5	3-Cyclohexene 1-methanol, .a	8.126	2700	NJ
8.	UNKNOWN	10.365	1800	J
9.	UNKNOWN	11.082	1100	J
10. <del>57 10 3</del>	Hexadecanoic acid	13.559	10000	NJ
11. 13481 95 3	10-Octadecenoic acid, methyl	14.589	7000	ŊJ
12. 57 11 4	Octadecanoic acid	14.678	3500	NJ
13.	UNKNOWN	14.767	4000	JR
14			1000	
15.				
16.				
17.				
1 10.				
19.	1.77			
20.				
21.				
22.				
23.				
24.				
25				
26.				
27.				
28.		<del></del>		
29.				
30.				
·	l <del></del>			

11,7. unknown

12,10. unknown organic acid

000692 I found in SBLKEZ and élutes before 1st svoA target analyte, pheno1.

Alkane Report for Sample: YX352

Page:

Data file : EE8116.d Matrix :

CAS #	Compound	R.T.	Estimated Conc.
124-18-5 2847-72-5 544-76-3 629-97-0 638-67-5 646-31-1 7225-66-3 55124-79-3 13475-75-7 630-01-3 -7225-64-1 55333-99-8	Decane Decane, 4 methyl UNKNOWN ALKANE UNKNOWN ALKANE UNKNOWN ALKANE Docosane Tricosane Tricosane Tridecane, 7 hexyl Heptadecane, 8 hexyl Hexacosane Heptadecane, 9 octyl Eicosane, 7 hexyl Triacontane	6.098 6.334 6.733 7.084 14.29 14.84 15.36 15.85 16.33 17.24 17.72 18.25 18.85	2200 3700 1800 3900 5000 7000 9000 9600 10000 9900 8500 8200 5900 4800
	11 1400iicaiic	20.34	3100

Concentration Units: Water: UG/L

Soil: UG/KG

1-8-97 RC

000014

AS, ESAT 1/31/97

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

YX355	
111000	

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.06

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

EE8118.D

Level:

(low/med) LOW

Date Received: 12/11/96

% Moisture: 15

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/27/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.4

Number TICs found: N 4

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	UNKNOWN	4 305	<del></del>	
2. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.553	11000	A NJB
2. 123 42 2	UNKNOWN	5 224	11000	A NOB
	UNKNOWN	5.234	320	<del>JB</del>
5. 110-13-4	2,5 Hexanedione	5.299	87	- J
	INIVIOUNI	5.501		<del> </del>
7.	UNKNOWN	5.500		
8. <del>611-14-3</del>	Dongono Y other? & mother?	5.697	87	J
- · ·	Benzene, \(\frac{1}{2}\)-methyl- <del>Cyclohexene, 1-methyl-4-(1-m</del>	5.827	100	NJ
9. <del>5989 54 8</del>	HUNDOWN TO THE THE THE THE THE THE THE THE THE THE	6.531	240	ŊJ
10.	UNKNOWN	7.599	130	<del>JB</del>
11. 6938-94-9	Hexanedioic acid, bis(1-meth		120	ŊJ
12	Unknown alkane	7.081	150	J
13.	unknown alkane	11.527	130	J
14.	Unknown alkane	11.877	260	J
15.	unknown alkane	12.528	200	3
16.	unknown alkane	12,600	420	J
17.	Unknown alkane	13.522	220	J
18	Unknown alkane	13.737	.240	
19.	Unknown alkane	14.293	310	· J
20.	Unknown alkanc	14.839	140	3
21.				
22.			<del></del>	
23.		<del></del>		
24.				
25.	-			<del></del>
26.	-			
27.				
28.			<u> </u>	
29.	-		<del></del>	
30.	-			
30				
			•	

9. unknown

11. Hexanedioic acid, bis (1-methylethyl) ester

2,4,6,10 found in SBLKEZ.

1-5 elute before 1St SVOA target analyte, pheno1. FORM I SV-TIC

000800

AS, ESAT 1121197

EPA SAMPLE NO.

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Contract: 68-D5-0018 Lab Name: ATAS, INC.

YX356

Lab Code: ATAS

Case No.: 25218 SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.09

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: EE8135.D

Level:

(low/med) LOW Date Received: 12/13/96

% Moisture: 15

decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume:

500 (uL)

Date Analyzed: 12/30/96

Injection Volume:

2.0(uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 8.9

Number TICs found: N 4

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	· · · · · · · · · · · · · · · · · · ·	<del></del>	<del>                                     </del>	
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=======================================	=======================================	======		=====
<del>-1.123 42 2</del>	2-Pentanone, 4 hydroxy 4-met	4.497	11000	NJB JB JB
2.	Unknown	5.210	140	- JR
<del>-3.</del>	Unknown	5.275	280	JB'
4. 110-13-4	2,5-Hexanedione	5.362	110	NJ
-5.	Unknown	5.476	160	JB JB
6.	Unknown	5.564	130	J <b>E</b>
7. <del>138-86-3</del>	Limonene Unknown	6.506	110	ŊĴ
8.	Unknown	7.589	180	<del>JB</del>
9. <del>1526-17-6</del>	2-Fluoro-&-nitrophenol	7.747	84	ИЛ
10. 6938-94-9	%-Fluoro-&-nitrophenol Hexanedioic acid, bis(1-meth	10.054	120	NJ
<del>-11</del>	Unknown	14.836	83	JB
12		·		
13.				
1 14.				
15.				
16				
17		<del></del>		
18.			<del></del>	
19.		<del></del>		
20.			·	
21				
21.		<del>,</del>		
44.				
23.			·	
24.				
25.				
∠6.				
27.				
28.		·		
29.				
30.				
	I many the second secon			

10. Hexanedioic acid, bis (1-methylethyl) ester 1,3,5,8,11 found in SBLKEZ.

1-4 dute before 1st SVOA target analyte, phenol.

000834

TPO: [ ] FYI

[X] Attention

[X] Action

Region <u>9</u>

#### ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. <u>25218 Memo #02</u>	LABORATORY ATAS
SDG NO. YX341	SITE NAME <u>Victoria Golf Course</u>
SOW OLM03.2	REVIEW COMPLETION DATE February 10, 1997
REVIEWER [ ] ESD [X] ESAT	REVIEWER'S NAME <u>Adriane Scheele</u>
NO. OF SAMPLES WATER14	SOILOTHER
	VOA BNA PEST OTHER
1. HOLDING TIMES/PRESERVATION	<u> </u>
2. GC-MS TUNE/GC PERFORMANCE	<u> </u>
3. INITIAL CALIBRATIONS	<u> </u>
4. CONTINUING CALIBRATIONS	<u>x</u> <u>x</u>
5. FIELD QC	x
6. LABORATORY BLANKS	<u>x</u> <u>x</u>
7. SURROGATES	
8. MATRIX SPIKE/DUPLICATES	<u> </u>
9. REGIONAL QC	<u> </u>
10. INTERNAL STANDARDS	<u> </u>
11. COMPOUND IDENTIFICATION	
12. COMPOUND QUANTITATION	<u> </u>
13. SYSTEM PERFORMANCE	_ o _ o
14. OVERALL ASSESSMENT	<u>x</u> <u>z</u>
· ·	

TPO ACTION: Quantitation limits for several semivolatile analytes in two samples are rejected (R) due to low internal standard area counts.

**TPO ATTENTION:** (1) Several results are qualified as nondetected and estimated (U,J) due to contamination in method and storage blanks. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results in two samples are estimated (J) due to low internal standard area counts.

AREAS OF CONCERN: None.

O = Data have no problems or problems that do not affect data quality.

X = Data are qualified due to minor problems.

M = Data are qualified due to major problems.

Z = Data are unacceptable.

N/A = Not Applicable

In Reference to Case No(s).: 25218 Memo #02

February 10, 1997
Date

## Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #1

	Date of Call:	January 30, 1997
	Laboratory Name:	American Technical & Analytical Services (ATAS)
	Lab Contact:	Ruseal Brewer
	Region:	9
	Regional Contact:	Adriane Scheele, ESAT/Lockheed
	Call Initiated By:	Laboratory X Region
In re	ference to data for the f Sample Delivery Group (S	ollowing: DG) YX341 for Volatiles Analysis
Summa	ry of Questions/Issues Di	scussed:
The f fract	ollowing items were noted ion.	during the review of the data for the volatiles
1.	Form 5A, page 32, incorr Please submit a correcte	ectly states that a heated purge was used. d Form 5A.
2.	elutes at 7.316 minutes.  an unknown elutes at 7.33	page 77, for sample YX343 states that acetone Form 1E, page 75, for sample YX343 states that 16 minutes. The extracted ion current profiles one and the unknown appear to be identical. a corrected Form 1E.
3.	identified compound (TIC Section 11.1.2.2 of Exhib	ample YX352 lists naphthalene as a tentatively ) eluting at 21.129 minutes. According to bit D-38/VOA of the SOW, semivolatile target it C are not to be reported as TICs. Please 1E.
Summa	ry of Resolution:	
1-3.	Corrected Forms 1E and 5	A were received at ESAT on February 5, 1997.

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

adrian Schule

In Reference to Case No(s).:
 25218 Memo #02

<u>February 10, 1997</u> Date

## Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #2

	Date of Call:	February 4, 1997
	Laboratory Name:	American Technical & Analytical Services (ATAS)
	Lab Contact:	Ruseal Brewer
	Region:	9
	Regional Contact:	Adriane Scheele, ESAT/Lockheed
	Call Initiated By:	Laboratory X Region
In re	ference to data for the for sample Delivery Group (S	ollowing: DG) YX341 for Semivolatiles Analysis
Summa	ry of Questions/Issues Di	scussed:
	ollowing items were noted platiles fraction.	during the review of the data for the
<ol> <li>2.</li> <li>3.</li> </ol>	was injected on December provided on pages 925 the December 27, 1996 at 10:2 determined using the raw Form 5B. Please submit A tentatively identified YX340 is not listed on the was not provided either. TICs eluting at 7.081, 7 13.737, 14.293, and 14.85	ates that decafluorotriphenylphosphine (DFTPP) 27, 1996 at 14:00. However, the raw data rough 928 indicate that DFTPP was injected on 29. Also, the percent relative abundances data do not correspond to those listed on appropriate documentation. compound (TIC) eluting at 7.383 min. in sample ne Form 1F. An alkane report for sample YX340 Please provide appropriate documentation. 425, 11.527, 11.877, 12.528, 12.600, 13.522, 39 min. in sample YX355 are not listed on the control of the
Summa	ry of Resolution:	te documentation.
1. 2-3.	were received at ESAT on	o the December 27, 1996, 14:00 DFTPP injection February 5, 1997. es YX340 and YX355 were received at ESAT on

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy



# Contract Laboratory Program REGION 9/LABORATORY COMMUNICATION SYSTEM CSF COMPLETENESS EVIDENCE AUDIT PROGRAM Telephone Communication Summary Form

AUDIT NO.:	2/97/9	LAB CONTACT	: Ruseal Brewer
CASE NO.:	25218 Memo #02	LAB CODE:	ATAS
SDG NO.: _	YW341	LAB NAME: _	American Analytical &
		_	Technical Services
FILENAME:	25218M02.TCS	LAB LOCATION	N: <u>Maryland Heights, MO</u>

Summary of Questions/Issues Discussed:

The following items were noted during the audit of the complete sample delivery group file (CSF).

- Remark 6 of Form DC-1, page 1049, includes airbill 279 440 5585. Since the samples shipped to the laboratory under airbill 279 440 5585 are not included in the samples listed on the Form DC-1, the airbill number should not have been included in remark 6. Please submit a corrected Form DC-1, page 1049.
- Please refer to Form DC-1, page 1050. Please submit a Form DC-1, page 1050, corrected for the following observations.
  - A. Remark 11 lists the time of receipt as 0845. The chain of custody forms associated with the samples listed on Form DC-1 include two times of receipts: 0845 and 1400.
  - B. In the remarks section regarding the condition of sample shipment, a 10°C temperature is recorded for all of the samples listed. However, a 5°C temperature is recorded on the chain of custody forms for samples YX325, YX333, YX339, YX340, YX348, YX356, and YX363.
- 3. The sample transfer section of Form DC-1, page 1050, was not completed. Please complete the sample transfer section as instructed per Section 3.19 of Exhibit B-61 of the Statement of Work (SOW) in future data package submittals.
- 4. Page numbers 933 through 976 are incorrectly listed for the matrix spike/matrix spike duplicate data in Section 5.d of Form DC-2-2. The auditor has manually corrected those page numbers as 957 through 976. Please note in your records.
- 5. Samples for this sample delivery group (SDG) were provided in three shipments (airbill numbers 279 440 5574, 279 440 5784, and 279 440 6646) as indicated on the chain of custody forms on pages 17 through 19. The auditor has manually revised Section 8, Airbills, on Form DC-2-4 to reflect three shipments. Please note in your records.

Summary of Resolution:

1-2. The laboratory's response is pending as of February 10, 1997.

3-5. No further response from the laboratory is required.

Auditor, ESAT/Lockheed

<u>January 30, 1997</u> Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

TABLE 1A

Site:

Victoria Golf Course

Lab.:

Analytical Resources, Inc. (ARI)

Reviewer:

Dina David-Bailey, ESAT/Lockheed

Date:

February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

Concentration in µg/L

			T				. ·		
Station Location Sample I.D. Date of Collection Parameter	GW-1-1 MYX291 12/13/96 Result	Val Con	GW-3-1 MYX293 B 12/11/96		GW-5-1 MYX295 D1 12/11/96	GW-13-1 MYX301 EB 12/10/96	GW-14-1 MYX302 EB 12/11/96	GW-28-1 MYX334 D1 12/11/96	Lab Blank
	ittsuit	Vall Com	Result Val	Com	Result Val Com	Result Val Com	Result Val Com	Result Val Com	Parelt V. J. C.
Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Fhallium /anadium Linc	1.0 U 92.6 L	J B B B B B B B B B B B B B B B B B B B	20.0 U 50.0 U 1.0 L 42.1 L 1.0 U 2:0 U 173000 5.0 U 3.0 U 5.8 L 20.0 U 1.0 U 45000 411 0.10 U 10.0 U 8570 1.0 U 3.0 U 418000 1.0 U 5.7 L J	A A D CD	20.0 U 50.0 U 1.7 L 325 1.0 U 2.0 U 99700 5.0 U 3.0 U 2.0 U 20.0 U 1.0 U 38000 419 0.10 U 10.0 U 7730 1.0 U 3.0 U 78100 1.0 U 78100 1.0 U 4.9 L J A	20.0 U 50.0 U 1.0 U 1.0 U 2.0 U 119 L 5.0 U 3.0 U 3.7 L 20.0 U 1.0 U 1.0 U 1.0 U 1.0 U 3.0 U 1.1 L 0.10 U 1.0 U 1.0 U 3.0 U 3.0 U 3.0 L 3.	20.0 U 50.0 U 1.0 U 1.0 U 2.0 U 32.6 L J A 5.0 U 3.0 U 20.0 U 1.0 U J D 20.0 U 1.0 U 10.0 U 400 U 1.0 U 3.0 U 253 L J A 1.0 U 3.8 I J A 4.3 L J A	27.7 L J A 50.0 U 1.7 L J A 339 1.0 U 2.0 U 106000 5.0 U 3.0 U 2.0 U 20.0 U 1.0 U 40900 451 0.10 U 10.0 U 7580 1.0 U 3.0 U 83400 1.0 U 4.6 L J A 9.8 L J A	Result Val Co

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample CRDL-Contract Required Detection Limit

### ANALYTICAL RESULTS . TABLE 1A

25218 Mamo #03

Victoria Golf Course

Analytical Resources, Inc. (ARI)

Analysis Type:

Low Concentration Soil Samples for Total Metals

nina	tical Resources, In David-Bailey, ESAT	Lockheed	Concentrat	ion in mg/Kg			22.10.10
Febru	nary 14, 1997			SS-7-10	SS-7-20	SS-9-10 MYX324 D2	SS-10-10 MYX325 D1
			SS-5-20	MYX320	MYX321	12/10/96	12/10/96  Result Val Com
	SS-4-20	SS-5-10	MYX317	12/10/96	12/9/96	Result Val Com	Result Val Com
Location	MYX315 BG	MYX316	12/10/96		Result Val Com	Resuit	1.
1.D.	12/10/96	12/10/96 Val Com	Result Val Com	Result Val Com		24400	31400
Collection	Result Val Com	Result Val Com			16400	11.0 U R A	11.6 U R A
ter	Kesun		19700	10800   R A	' 14.0 U R A		5.5
	12100	26800	12.1 U R A	13.8 0	7.3	15.5	200 J D
um	12.3 U R A	16.6 J B	15.6	6.5	341 J D	230   -	0.89 L J C
ony		9.2	167 J D	821 J D	0.36 L J C	1 , 0.04 5 -	0.46 U
	4.0 I D	242 J D	0.61 L J C	0.65 L J C	2.0	1.5	9880
<b>1</b>		0.73 L J C	0.76 L J C	6.2	23700	19500 H	39.1
um	1 1 1 1	0.99 L J C	0.70 2	10600	48.0	33.3	15.4
um	0.49 U	1.	97400	912	13.1 L 1 C	12.6	38.1 J F
	5590	33.0	30.9	17.2	13.1	345 J FH	38200
ım	16.3	125	11.2	276 11 15	1/6	28700	1 1 1
nium	8.3 L J C	266   I   F	30.3 J F	35800	27200	233 H	10.6
lt	16.9 J F	30.0	26000	942	- 245	9280	11400
er	19200	34000	9.8	4720	6440	584	613
	5.1	9.5	15200	1 1 1	368	014	0.03 0
<b>i</b>	6760	12500	980	371	0.31	29.0	23.8
nesium	478	581	0.06 U	0.72	38.8	5200	5060
ganese		0.06 U	26.9	86.8	4160		1.1 U J BC
rcury	13.9	21.8	2350	3980	0.28 11 1	BE	0.70 U
kel	1 11	6710	1	BEG 0.28 U J	006 1 1 1	C 0.66 U	2730
assium	2780	BE 1.1 U J E	3EG 0.72 U	1.8 L J	1470	1000	1111   0
enium	0.25	0.71 U	3180	1370 L J	1411	G 1.1 0	78.8'
ver	0.74 U	C 3010		G 1.4 U	G 50.0	59.0	077 1 8
dium	356 L J	1 1 111111	G 1.2 U	179	022 1	B 802 J B	BH 97.7 3
nallium	0.23 U J	E 73.5	56.3	B 1140 J	B 832		
3	38.0	053 1	B 61.2 J	B			84.4 %
anadium	45.8 J	B 83.3				87.9 %	84.4 /9
Zinc	Spirite Control of th		-	71.5 %	70.0 %		
			80.5 %	11.5 /4			
	81.5 %	83.1 %	(				<del></del>
Percent Solid	is	1: 1			D1, D2, etcField Dupli	icate Pairs	. D.G. Background Sample

Val-Validity. Refer to Data Qualifiers in Table 1B. Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

MDL-Method Detection Limit.

or Conficable, NA-Not Analyzed

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample CRDL-Contract Required Detection Limit

#### ANALYTICAL RESULTS TABLE 1A

Case No.:

25218 Memo #03

Site:

Victoria Golf Course

Lab.:

Analytical Resources, Inc. (ARI) Dina David-Bailey, ESAT/Lockheed

Reviewer:

February 14, 1997

Analysis Type:

Low Concentration Soil

Samples for Total Metals

Concentration in mg/Kg

Station Location	ple I.D. MYX308 D1 MYX309						SS-2-10 MYX310 E 12/10/96	)2	SS-2-20 MYX311 12/10/96	·		SS-3-10 MYX312 B 12/10/96	<u>,                                      </u>	SS-3-20 MYX31 12/10/9	3 B(	Com	SS-4-10 MYX314 BG 12/10/96 Result Val (		
Date of Collection		Val			Val C	0.00		al Com	Result	Val C	o m	Result Va	Com	Result	VAI	Com	1,000	1	
Aluminum Antimony Arsenic Barium Beryllium Cadmium Colcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc Percent Solids	Result  28300 13.6 L 5.0 158 0.83 I 0.47 U 7660 33.7 15.9 36.8 36800 10.7 11100 617 0.06 28.2 4820 1.2 0.70 2690 1.2 73.8 88.2	J	BC D C G B	25400 11.8 U 5.5 202 0.66 L 0.63 L 12400 34.8 14.4 34.2 32500 11.2 10800 613 0.06 24.2 3980	ן ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט	,	31100 10.8 9820 486 0.06 U 20.7 5260	CGH D C C H H H G G BE	233 0.40 L 1.0 L 9090 29.5 7.9 L 33.1 20400 41.8 5770 221 0.20 13.3 4170 0.25 U 0.75 U 1130 1.3 41.7	1 C C C C C C C C C C C C C C C C C C C	<b>)</b>	32500 12.3 U R 5.9 184 J 0.87 L J 0.51 L J 12200 40.5 16.5 35.5 39000 11.3 13600 496 0.06 U 29.5 5190 1.2 U 0.74 U 4120 1.2 U 75.8 85.2	D C C F G B G G B B G G B B B B B B B B B B B	22.4 23300 6.0 6540 272 0.15 17.4 2840 0.29 0.60 84 0.22 49.	J J J J J J J J J J J J J J J J J J J	D C C F	22800 11.1 U 4.4 I 127 0.57 I 0.50 I 14500 27.3 11.4 26.7 28100 7.7 10000 438 0.06 18.1 5230 1.1 0.67 875 1.1 59.3 71.5	1 J J J J J J J J J J J J J J J J J J J	G

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit. MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

## ANALYTICAL RESULTS TABLE 1A

Case No.: 25218 Memo #03

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

Concentration in µg/L

Station Location Sample I.D. Date of Collection	GW-2-1 MYX292 12/9/96		GW-4-1 MYX29 12/12/9	94 BC	)	GW-9-1 MYX297 12/10/96		GW-10-1 MYX298 12/11/96			GW-11-1 MYX299 12/9/96		GW-12- MYX30 12/10/96	O EB	Lab Blank 1			
Parameter ·	Result	Val Com	Result	Val	Com	Result V	al Com	Result	Val	Com	Result \	ai Com	Result	Val Com	Result	Val Com		
Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt	20.0 U 50.0 U	J C C	82.0 50.0 10.4 103 1.0 2.0 46300 5.0 3.0	L J U U	C	20.0 U 50.0 U 6.8 L 60.2 L 1.0 U 2.0 U 467000 5.0 U 3.0 U	С	20.0 U 50.0 U 1.2 L 34.7 L 1.0 U 2.0 U 1100000 5.0 U 3.0 U	J	C C	5.0 U 3.0 U	J C	20.0 L 50.0 L 1.0 L 1.0 L 2.0 L 26.8 I 5.0 L 3.0 L	J C	20.0 L 50.0 L 1.0 L 1.0 L 2.0 L 20.0 L 5.0 L 3.0 L	J J		
Copper Iron Lead Magnesium Manganese	2.0 U 1820 1.0 U 260000 2690	J B	2.0 56.5 1.0 15900 154 0.10	L J U	С	2.0 U 20.0 U 1.0 U 119000 676 0.10 U	J B	2.0 U 18200 5.0 U 327000 1970 0.10 U		G B		1 C 1 C 1 C	20.0 t 1.0 t 20.0 t 1.0 t 0.10 t	J J	20.0 T 1.0 T 20.0 T 1.0 T 0.10 T			
Mercury Nickel Potassium Selenium Silver Sodium	10.0 U 18300 5.0 U 3.0 U 580000	R AG	10.0 6050 1.0 3.0 54800	U U R U		10.0 U 10200 1.0 U 3.0 U 227000		10.0 U 21000 5.0 U 3.0 U 1380000	R	AG	10.0 U 400 U 1.0 U 3.0 U 432 L 1.0 U	J C	10.0 400 1.0 3.0 50.0		10.0 1 400 1 1.0 1 3.0 1 50.0			
Thallium Vanadium Zinc	1.0 U 2.0 U 98.5		1.0 2.0 4.0	U		1.0 U 7.0 L 53.1	J C	2.0 U 64.6	İ	£	2.3 L 4.0 U	J C	2.3	r i c	2.0	U		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

Station Location	GW-1-	1.		GŴ-2	<u></u>		GW-3	-		GW-4-1		GW-5			GW-9			GW-1		
Sample I.D.	YX322	<b>?</b> .		YX32	3			4 BG		YX325 B	G	YX32		١. ١	YX32			-		
Date of Collection	12/13/96 12/9/96		12/11		4	12/12/96	12/11		_	12/10/96  Result Val Com			12/11/96  Result Val C							
Semivolatile Compound	Result	Val	Com	Result	1	Com	Result	Val Cor	n i		Com	Result		Com	Result	+	Com	10 U	<del></del>	Com
Acenaphthene	10 U			10 t	기		10 L	1 1		10 U		10 U	1 3		10 U	1	С	25 U	1 1	
2,4-Dinitrophenol	25 U			25 t	l l	С	25 U	1 1		25 U		25 U	1		25 U 25 U	1 1		25 U	1 1	1
4-Nitrophenol	25 U			25 U	J '	F	25 U	1		25 U		25 U			25 C 10 L			10 U	1 1	
Dibenzofuran	10 U			10 U	ال		10 €	1 1		10 U		10 U	ı			1	.	10 U	1	
2,4-Dinitrotoluene	10 U			10 U	ןנ		10 t			10 U		10 U			10 U	٠ .	1	10 U	1	
Diethylphthalate	3 L	3	AG	10 1	ᆁ .		0.6 I	1 1	3	10 U		10 U	1		10 t			10 U	1	
4-Chlorophenyl phenyl ether	10 U			10 (	J	1	J 01	} I		10 U		10 U	1		10 U	1		10 U		1
Fluorene	10 U		,	10 1	1		· 10 t	i 1		10 U		10 t			10 t 25 t	1	С	25 U	1	
4-Nitroaniline	25 U			25		C	25 (			25 U	Ì	25 U	i		25 t	1		25 U	1	
4.6-Dinitro-2-methylphenol	25 U	J	E	25	비		25 (	1 1		25 U		25 1		E	10 U	1		10 U	1	1
N-Nitrosodiphenylamine	10 U	J	E.	10	U		10 1		.	10 U		10 (	] ,	E		L		10 C		
4-Bromophenyl phenyl ether	10 L	] ]	E	10	U		10 1	1		10 U		10 (	] ]	E.	10 U			10 [	1	
Hexachlorobenzene	10 t	] ]	E	10	U		10 1	1 1		10 U		10 (	-	E	10 t 25 t	- 1		25 t		
Pentachlorophenol	25 t	ן נ	E	25	U	F	25	ן ע		25 U		25 (	1	E	10 1	ì		10 t	1	
Phenanthrene	10 t	J J	E	10	U		10	U		10 U		10 1		E	10	i		10 (		
Anthracene	10 t	J J	E	10	U		10		·	10 U		10 1	1	E	1	- 1		10 (	1	
Carbazole	10 (	J J	E	10	U		10	1 1		. 10 U		10 1	- 1	E	10	- 1	AG	10 (		
Di-n-butylphthalate	71	. ]	AEG	10	UJ	В	57	G		21	G	2	1	AEG	l .		AG	10 (	1	
Fluoranthene	10 (	ָן נ	E	10	U	İ	10	บ		10 U		10	i	E	10	1		10 0	٠.	D
Pyrene	10 1	J J	DE	10	U		10	U		10 U J	D	1.	UJ	E		ì	-	10 (		
Butylbenzylphthalate	10	J J	E	10	U		10	U		10 U			U I	E	10	- ( '		10 (	-	1
3,3'-Dichlorobenzidine	10	J J	E	10	U		10	U		10 U		10	1	E	10	- 1	.	10 1	1	
Benzo(a)anthracene	10	u j	E	10	U		10	U		10 U		10	1	E	10	- E		10-1	1	
Chrysene	10	U.J	E	10	U	1	10	U		10 U		10	1	E	10	U		6	1	AC
bis(2-Ethylhexyl)phthalate	10	נ ט	E	10	U	•	2	LJA	.G	1 L J		1		AEC	1		G	10		DE
Di-n-octylphthalate	10	U J	DE	10	U		10	U		10 U	D	10	1	E	10	- I	İ	10	-1-	E
Benzo(b)fluoranthene	10	U J	E	10	U		10	U		10 U	i	10		E	10	- 1	1	1	1	E
Benzo(k)fluoranthene	10	u i	E	10	U		10	·U	-	10 U		10		E	10		,	10	1	E
Benzo(a)pyrene	10	U J	E	10	U		10	U		10 U		10		E	10	-		10	- 1	E
Indeno(1,2,3-cd)pyrene	10	UJ	E	10	U		10	U		10 U		10	1	E	10	- 1		10	t	E
Dibenz(a,h)anthracene	10	UJ	E	10	U		10	U		10 U		10	i	E	10			10	ļ	- 1
Benzo(g,h,i)perylene	10	1	E.	10	U		10	U		10 U		10	UJ	E	. 10	U	1	10	n 1	E
Delizo(R) ii i bei A tene											_		_L		<u></u>			1,	1	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

Site:

Case No.: 25218 Memo #01

Victoria Golf Course

American Technical & Analytical Services (ATAS) Lab.:

Reviewer: Dina David-Bailey, ESAT/Lockheed

February 10, 1997 Date:

Analysis Type:

Low Level Groundwater Samples

for Semivolatiles

Concentration	in	μg/L
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tation Location	GW-1-1		GW-2 YX32		GW-3 YX32		GW-4- YX325		GW-5 YX32		GW-9 YX32		GW-10-1 YX329	
ample I.D.	YX322		12/9/		12/11/		12/12/9		12/11/	96	-12/10	·	12/11/96	T
ate of Collection	12/13/96	J		Val Com	Result	Val Com	Result	Val Com	Result	Val Con		Val Com		Con
emivolatile Compound	100000	Com	Result 10 U	<del></del>	10 U	<del></del>	10 U		10 U		10 U		10 U	
henol	10 U		i	1 1	10 U	l i	10 U		10 U	4	10 U	<b>,</b>	10 U	
sis(2-Chloroethyl)ether	10 U		10 0	1 1	10 0	1 1	10 U	Ì	10 U		10 t	)	10 U	
2-Chlorophenol	10 U		10 1	1 1	10 0	1 1	10 U		10 U		10 t	J .	10 U	
,3-Dichlorobenzene	10 U		10	1 1	10 1	\$ I	10 U		10 (	,   .	10 (	J	10 U	
1,4-Dichlorobenzene	5 L J	A	10	1 1	10 1	1 1	10 U		10 t	,	10 (	J	10 U	
1,2-Dichlorobenzene	2 L J	A	10	1 1	1	1 1	10 U		10 t	户	10 (	ן (נ	10 U	
2-Methylphenol	10 U		10	i i	10 U	1 1	10 U		10 t	1 1	10 (	ا ا	10 U	
2,2'-oxybis(1-Chloropropane)	10 U		10			1 1	10 U		10 U	1 1	10 (	∟	10 U	
4-Methylphenol	10 U		10	1 1	10 (	1 1	10 U		10 (		. 10 1	U	10 U	
N-Nitroso-di-n-propylamine	10 U		10	1 1	10 (	1 1	10 U	1 1	10 (		10	u l	10 U	
Hexachloroethane	10 U	-	10	1 1	10 1	1 1	10 U	1 1	10 1	1 1	10	u	10 U	1
Nitrobenzene	10 U	1	10	1 1	10 1	1 1	10 U	1 1	10 1	1	10	ul l	10 U	
Isophorone	10 U		10	-1 1	10	1 1	10 U	1 1	10	l i	10	1 1	10 U	
2-Nitrophenol	10 U		10	- 1	10	1 1	10 0	1 1	10		10	1 1	10 U	
2,4-Dimethylphenol	10 U		10	1 1	10		10 t	1 1 .	10		10		10 U	
bis(2-Chloroethoxy)methane	10 U		1	1 1	10	1 1	10 U	1 1"	10	- I	10	ן וט	10 U	
2,4-Dichlorophenol	10 U		10	1 1	10	i 1	l l	1 1	10	1 1	10	1 1	10 U	
1,2,4-Trichlorobenzene	10 U		10	1 1	10	1 1	10 t	1 1	10	1 1	10	1 1	10 U	
Naphthalene	10 U		10	U	10	i 1	10 U	1 1	10	1 1	10	- i	10 U	
4-Chloroaniline	10 U		- 10	U .	10	1 +	10 (	1 1 .	10	`	10	1 1	10 U	- [
Hexachlorobutadiene	10 U		10	U	10	t i	10 (	1 1	10	1 1	10	1 1.	10 U	.
4-Chloro-3-methylphenol	10 U		10	U	10	1 1	10 (	1 1	10		10	1 1	10 U	ĺ
2-Methylnaphthalene	10 U	1	10	U	10	1 1	10 1		10	1 1	10	1 1	10 U	
Hexachlorocyclopentadiene	10 U		10	U	10	i i	10	1 1	1	}	10	1 1	10 U	
2,4,6-Trichlorophenol	10 U	}	10	Ū	10	1 1	10	1 1	10	1 1	25	1 1	25 U	
2,4,5-Trichlorophenol	25 U		25	ับ	25	U	25	1 1	25	1 1	10		10 U	
2,4,5-1 richtorophenor	10 U	1.	10	יט	10	U	10	1 1	10	1 1	25	1 1	25 U	
2-Nitroaniline	25 U		2:	s U	25	U	25	I' I	25	i i	i	1 1	10 U	ł
1	10 U	-	10	ว บ 📗	10	U	10	1 1	10			U	10 U	
Dimethylphthalate	10 U			οU	10	U	- 10	1		U	1	U	10 U	
Acenaphthylene	10 U		1	o U	10	U	10	U	i i	U		U	25 U	
2,6-Dinitrotoluene 3-Nitroaniline	25 U		1	5 U	25	U	25	U	25	U		U	23 0	

~4	•	ت	<b>-</b>	

Station Location	GW-1	1		GW-1	2-1		GW-1	3-1	GW-1	4-1		GW-2	8-1		Metho	d Blank	Meth	od B	lank
Sample I.D.	YX33	0 EI	в	YX33	1 FE	3	YX33	2 EB	YX33:	3 EE	3.	YX36	3 D	1	SBLK	EA	SBL	(EU	
Date of Collection	12/9/9	6		12/10/	/96		12/10/	96	12/11/	96		12/11/	96						
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val Com	Result	Val	Com	Result	Val	Com	Result	Val Com	Result	Va	l Con
Acenaphthene	10 U			10 U			10 U		10 U			10 U	l .		10 U		10 t	ار	
2,4-Dinitrophenol	25 U	J	С	25 U			25 U		25 U			25 U			25 U		25 U	1	
4-Nitrophenol	25 U		ļ	25 U			25 U		25 U			<b>25</b> U			<b>25</b> U		25 t	J	
Dibenzofuran	10 U			10 U	ı		. 10 U		10 U			10 U			10 U		10 t	J	
2,4-Dinitrotoluene	10 U			10 U	J		10 U		10 U			10 U			10 U		10 t	- ł	
Diethylphthalate	10 U			10 U	J		10 U		10 Ų			10 U			10 U		10 t	기	
4-Chlorophenyl phenyl ether	10 · U			10 U	J		10 U		10 U			10 U			10 U	1 1	10 t	1	
Fluorene	10 U	1		10 U	J		-10 U		10 U			10 U			10 U	,	10 (	J	
4-Nitroaniline	25 U	J ·	·c	25 U	]		25 U		25 U	, ,		25 U			25 U	1 1	25 t	1	
4,6-Dinitro-2-methylphenol	25 U			25 U	J		25 U		25 U			25 U			25 U	1	25 l	J	
N-Nitrosodiphenylamine	10 U	ı	1	10 U	J		10 U		10 U			10 U			10 U	1	10 t	i	1
4-Bromophenyl phenyl ether	10 U	1	1	10 U	٦ ار		10 U		10 U			10 U			10 U	1	10 (	ال	
Hexachlorobenzene	10 U	r		10 L	J .		10 U		10 U			10 U			10 U		10 t	J	
Pentachiorophenol	25 U	1		25 U	3	1	25 U		25 U			25 U	1		25 U		25 t	J	
Phenanthrene	10 U	ı		10 U	ار		10 U		10 U			10 U			10 L	Ŋ [	10 t	J	
Anthracene	10 U	1		. 10 t	]		10 U		10. U			10 U			10 U	1	10 t	J	
Carbazole	10,U	,		10 t	J ·		10 U	1 1	10 U			10 U			10 L		10 (	J	
Di-n-butylphthalate	0.5 L	J	AB	10 t	ال		10 U		10 U			2 L	j	AG	10 L		10 (	기	
Fluoranthene	10 U	J		- 10 t	ار		10 U	1	10 U			10 U			10 L		10 U	J	1
Pyrene	10 U	J		10 L	ال		10 U		10 U	J	D	10 U	J	D	10 L	ı	10 t	J	
Butylbenzylphthalate	10 t	J	1	10 t	ار	Ì	10 U		10 U			10 U	ı		10 L		_ 10 t	J	
3,3'-Dichlorobenzidine	10 t	J		10 (	ار		. 10 U		10 U			10 U			10 L		10 (	J	
Benzo(a)anthracene	10 t	J		10,0	J		10 t		10 U			10 U	1		10° t	<b>,</b>	10 (	J	
Chrysene	10 t	J		10 t	J .		10 L		10 U			10 U			· 10 t	1 .	10 (	IJ	
bis(2-Ethylhexyl)phthalate	1 1 1	J	AB	10 t	J		· 10 t	,	10 U	ı		3 1	J	AG	10 U	/	. 10 t	IJ	
Di-n-octylphthalate	10 t		1	10 0	U	1	10 L	,	10 U	J	D	10 U	1	D	10 t	<b>,</b>   .	0.5 !	L J	AB
Benzo(b)fluoranthene	10 t	1		10 (	U		10 (	,	10 U	1		10 L	,		10 t	J	10 (	U	.
Benzo(k)fluoranthene	10 t			10 (			10 L	1	10 L	ı	1	10 U	,		10 t	<i>,</i>	· 10 t	U	
Benzo(a)pyrene	10 (	1		10 (			10 (	,	10 U	1		10 L	J		10 t	,	10 t	U	
Indeno(1,2,3-cd)pyrene	10 t	1		10 (	1		10 (	1 1	10 L	ı		10 t	3	1	10 U	J	10 1	U	
Dibenz(a,h)anthracene	10 (	į.		10 (	- 1		10 (	,	10 t	ı		10 U	J		10 t	J	10 1	U	
Benzo(g,h,i)perylene	10 t	1	1	10 1	- 1		10 (	,	10 (	1		10 (	ı		10 t	J	10 (	U	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

Case No.: 25218 Memo #01

TABLE 1A

Site:

Victoria Golf Course

Lab.:

American Technical & Analytical Services (ATAS)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date:

February 10, 1997

Concentration in µg/L

Analysis Type: Low Level Groundwater Samples

for Semivolatiles

			<u> </u>		····				T					
Station Location	GW-11	l	GW-	12-1	GW-1	3-1	GW-	14-1	GW-28	l-1	Meth	od Blank	Metho	d Blank
Sample I.D.	YX330	EB	YX3	31 FB	YX33	2 EB	YX33	33 EB	YX363	DI	SBLK	<b>KEA</b>	SBLK	
Date of Collection	12/9/96	5	12/10	0/96	- 12/10	/ <b>96</b> ·	12/11	/96	12/11/9	96			÷	
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com
Phenol	10 U		10 t	J	10 U		10 t	J	10 U		10 L	,	10 U	
bis(2-Chloroethyl)ether	10 U		10 (	ן ונ	10 U	1	10 L	J .	. 10 U		10 U	, l	10 U	
2-Chlorophenol	10 U		10 t	ט ו	10 U	ı	10 U	]	10 U		10 U	,	10 U	
1,3-Dichlorobenzene	10 U		10 t	ן	10 U	r	10 t	J	10 U		10 t	,	10 U	-
1,4-Dichlorobenzene	10 U		10 t	ן   כ	10 U	,	10 ι	J	^ 10 U		10 t	1 1 '	.10 U	١.
1,2-Dichlorobenzene	10 U		10 (	וווו	10 U		10 t	J	10 U		. 10 U	,	10 U	
2-Methylphenol	` 10 U		10 0	u   L	- 10 U	1	10 t	,	10 U		10 U	,	10 U	
2,2'-oxybis(1-Chloropropane)	10 U		10 t	ן וע	10 U		10 U	, 1	10 U		10 L	1 1	10 U	
4-Methylphenol	10 U	ļ.	10 t	J	10 U		10 t	<i>,</i>	10 U		10 L	.1	10 U	
N-Nitroso-di-n-propylamine	10 U		10 τ	ן ונ	10 U		10 L	,	. 10 U		10 L	,	` 10 U	
Hexachloroethane	10 U		10 (	ר וע	10 U		7 10 U	,	10 U		10 U	,	10 U	
Nitrobenzene	10 U		10 t	וי	. 10 U		10 U	ıl l	10 U		. 10 t	,	10 U	
Isophorone	10 U		10 τ	ן	10 U	i   .	10 t	J	10 U		10 L	,	10 U	
2-Nitrophenol	- 10 U		10 (	ן וי	10 U	, .	10 (	,	10 U		10 L	,	10 U	
2,4-Dimethylphenol	10 U		10 (		10 U		· 10 t	, .	10 U		10 L	,	10 U	
bis(2-Chloroethoxy)methane	10 U		10.0	ן ו	10 U		10 t		. 10 U		10 L	, I . I	10 U	
2,4-Dichlorophenol	10 U		10 (	וו	· 10 U		10 ι	,	10 U		10 L	,	10 U	
1,2,4-Trichlorobenzene	- 10 U		10 (	ווי	10 U		10 (	J .	10 U	1.	10 U	,	10 U	
Naphthalene	10 U		10 (	U	10 U	1	10 t	J	10 U		-10 L	,	10 U	ŀ
4-Chloroaniline	10 U		10 t	ו	10 U	1 - 1	10 (	j	10 U		10 U	1 1	10 U	
Hexachlorobutadiene	10 U		10 1	U	. 10 U	,	10 (	,	10 U		10 U		10 U	
4-Chloro-3-methylphenol	10 U		10 1		10 U		10 (	,	. 10 U		10 U		10 U	
2-Methylnaphthalene	10 U	, ,	10 1	ul l	10 U	1	10 t	,	10 U		10 U		10 U	
Hexachlorocyclopentadiene	10 U		10 1	U	10 U	,	- 10 t	,	10 U		10 U		10 U	
2,4,6-Trichlorophenol	10 U	•	10 (		. 10 L		10 t	,	10 U		10 L	1 1 1	10 U	
2,4,5-Trichlorophenol	25 U		25 (	u l	25 L		25 t	,	25 U	·	25 U	1 1 1	25 U	
2-Chloronaphthalene	10 U		10 1	u l	10 L	,   .	10 (	,	10 U		10 U	1 . 1 . 3	10 U	
2-Nitroaniline	25 U		25 1	וו	25 L	,	25 L	,	25 U		25 U	1. 1	25 U	
Dimethylphthalate 2	10 U		10 1	UL I	- 10 t	ıl l	10 t	,	10 U		10 U	1 1 1	10 U	
Acenaphthylene	10 U		10 1	יו	10 L		10 t	,	10 U		10 U		10 U	
2,6-Dinitrotoluene	10 U		10 1	u l	· 10 t		-10 τ	ار	10 U		10 U	1 1 1	10 U	
3-Nitroaniline	25 U		25 1	U	25 U	,	25 t	,	25 U		25 U		25 U	

Station Location	CWA			OW 1					<b></b>								'	
	GW-8			GW-I	- :	GW-			GW-17			Method 1	Blank		hod B	lank		
Sample I.D.	YX32			YX33			35 EB		YX336	DI		SBLK1		SBI	.K3		CRQ	L
Date of Collection	1/8/97	T		1/8/97		1/8/9			1/8/97						T	1		· · · · · · · · · · · · · · · · · · ·
Semivolatile Compound	Result	1	Com	Result	Val Con		Val Co	om		Val (	om		'al Com	Result		Com	Result	Val Cor
Acenaphthene	10 U	1 .	G	10 U		10	1 1		10 U		٠,	10 U		ł	U		10	
2,4-Dinitrophenol	25 U			25 U		25	1 1		25 U			25 U		1	UJ	E	25	
4-Nitrophenol	25 U	1		25 U		25	1 1		25 U	ļ		25 U		i	U J	E	25	
Dibenzofuran	10 U	1 1		10 U		10	1 1	1	10 U			10 U	-	10		1 .	10	
2,4-Dinitrotoluene	10 U			. 10 U	1 1 .	10	1 1		10 U			10 U		10	U J	E	10	
Diethylphthalate	1 L	J	AH	10 U		10			1 L	ı	AH	10 U		0.6	L J	AC	10	
4-Chlorophenyl phenyl ether	10 U			10 U		10	ł I		10 U	ļ	ļ	10 U		10	i		10	
Fluorene	10 U	1		10 U		10	1 1		. 10 U	1		10 U		10	U		10	.
4-Nitroaniline	25 U			25 U		25	U		25 U	1		25 U	1.	25	n 1	E	25	
4,6-Dinitro-2-methylphenol	25 U	1		- 25 U	1 1	25	U		25 U			25 U		25	U		25	
N-Nitrosodiphenylamine	10 U			10 U	1	10	U		10 U	- 1		10 U		10	U		. 10	
4-Bromophenyl phenyl ether	10 U			10 U	1 1	10	u l		10 U			10 U		10	U		10	
Hexachlorobenzene	10 U			10 U		10	u		10 U			10 U		10	U		10	1.
Pentachlorophenol	25 U			25 U		25	u	.	25 U			25 U		25	U		25	
Phenanthrene	- 10 U			10 U	.	10	U ·		10 U	- 1		10 U		10	U		10	"
Anthracene	10 U			10 U		10	u l		. 10 U			10 U	' '	10	U		10	
Carbazole	10 U			10 U		10	u I		10 U		İ	10 U		10	U		10	
Di-n-butylphthalate	10 U	J	С	10 U		0.6	L J A	c L	10 U	j	С	10 U		1	LJ	AC	10	
Fluoranthene	10 U			10 U		10	u l		10 U			10 U		10	u		10	1 1
Pyrene	10 U			10 U		.10	u	-	10 U		.	10 U		10	- 1		- 10	
Butylbenzylphthalate	.10 U			10 U		10	ul l		10 U	1	l	10 U	1	10	1, ,		10	
3,3'-Dichlorobenzidine	10 U			10 U	l·	10	ul I	1.	10 U		1	10 U	-	10			10	
Benzo(a)anthracene	10 U			10 U		10	1 1		10 U	- 1		10 U		10			10	
Chrysene	10 U		. [	10 U		10 1	1 1		10 U			10 U		. 10			10	
bis(2-Ethylhexyl)phthalate	10 U	ر	c	10 U		1	1 1	c	10 U	J	c	10 U		10	- 1	AC	10	
Di-n-octylphthalate	10 U			10 U		10	'   -	-	10 U			10 U		10	-1 -	F	10	4 5 3 2
Benzo(b)fluoranthene	10 U			. 10 U		10 1	. 1		10 U		.	10 U		10	1	F	10	
Benzo(k)fluoranthene	10 U			10 U		10 1	} }	.	10 U			10 U		10	. 1	F	10	
Benzo(a)pyrene	10 U			10 U		10 1	- I I		10 U		1	10 U		. 10	1	F	10	
Indeno(1,2,3-cd)pyrene	10 U			10 U		10 1	1 1		10 U	}		10 U				F	A 1 1	
Dibenz(a,h)anthracene	10 U			) 10 U		10 1	1 1		10 U			- i	'	10	1	1	10	
Benzo(g,h,i)perylene	10 U			10 U			1 1		1	ŀ		10 U		10		F	10	l. Too
~	10 0		1	. 10 0		10 0	1		10 U		1	10 U		. 10	UJ	F	10	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract/Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

#### ANALYTICAL RESULTS TABLE 1A

Case No.: 25268 Memo #01

Site:

Victoria Golf Course

Lab. :

Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 21, 1997

Analysis Type: Low Level Groundwater Samples

for Semivolatiles

Concentration in µg/L

Station Location Sample I.D.		GW-8- YX327			GW-1 YX33 1/8/97	4 EB	-	GW-1 YX33 1/8/97	5 EB	GW-17- YX336 1/8/97			Method SBLK	d Blank		Metho SBLK	d Blank		CRQ			
Date of Collection		1/8/97				Val Co		Result	Val Com		Val (	Com	Result	Val Cor	ı R	leșult	Val Co	m	Result	Va	l Co	m
Semivolatile Compound	$-\!\!\!\!+$		Val	Com	Result	+	m	. 10 U	<del></del>	10 U			10 U	· ·	Τ.	10 U		1	10	-		
Phenol	,	10 U			10 U	1 1		. 10 C	1 1	10 U			10 U	!!		10 U			10		18	
bis(2-Chloroethyl)ether	1.	10 U			· 10 t	1 1		10 C	1 1	10 U			10 U			10 U		Ì	10	1		
2-Chlorophenol		10 U			10 t	1 1			1 1	10 U			10 U			10 U	1.		10	Ì		
1,3-Dichlorobenzene	1	10 <sub>.</sub> U			10 t	1 1		. 10 U	1 1	10 U		,	10 U	1 1		10 U	,	1	10	1	1.	
1,4-Dichlorobenzene		10 U		ļ	10 0	1 1	,	10 U	1 1	10 U			10 U	1 1		10 U	1- 1		10			1,1
1,2-Dichlorobenzene	]	10 U			10 (	`I 1		10 U	1 1	1	-		10 U	1 1		10 U	1	1	10			
2-Methylphenol		10 U			10 1	1 1		10 U	1 1	10 U			10 U	1 1		10 L	1 1		10			
2,2'-oxybis(1-Chloropropane)		10 U		}	10 1	U		10 t	1 1	10 U	- 1		10 L	1 1		10 U	1 1		10	ŀ		
4-Methylphenol		10 U			. 10	1 1		10 0	1 1	10 U			10 L	1		10 U	1		10	[		gineri List
N-Nitroso-di-n-propylamine	.	10 U		G	10	U		10 1	1 1	10 U	- 1		10 0	1		10 U		1	10	1		
Hexachloroethane	j	10 U			10	U		10 1	1 1	10 U			1	1 1		10 t	1		10			
Nitrobenzene		10 U	ď	İ	10	U		10 1	U	10 U			10 L	1 I		10 t	1 1		10			
Isophorone		· 10 U			10	U		10 1	U	0.5 L	,	Α	10 U	1 1		10 (	1 . 1		10			u yk
2-Nitrophenol	:	10 U	ı		10	U		10	U	10 U	. [		10 t	1 1		10 0	1 1		10	- 1	1	Sec. 91
2,4-Dimethylphenol		10 U	,	Į	10	U		10	1 1	10 U	.		10 1	1		10 1	10.0		10	5 5 <b>1</b> 7 3		} \( \psi \)
bis(2-Chloroethoxy)methane		10 U	<u>با</u> .		10	U		10	u	10 U			10 t	1 1		10 (	1		10	- 1		. 42
2.4-Dichlorophenol		10 τ	ار		10	U		. 10		10 U			10 t	1 1			1 1		10	- 1		
1.2.4-Trichlorobenzene	,	· 10 t	ו	G	10	U		-10	U	10 U			10 (	1 1		10 1	1 1	,	10	- 1		
Naphthalene	٠.	10 t	ار		10	U		10	U	10 U			10 (	i I		10 1	1 1			1 :		
4-Chloroaniline		10 t	ار		10	U		10	U	10 U		1.	10 1	1 1		10	i I			- 1		
Uevachlorobutadiene		10 t	ار	ŀ	. 10	u		10	U	10 U			10 1	. I	.	10	l i	,	10 10	- 2	×	nj
,	1	10 t	ار ار		10	U		10	U	0.6 L	J	A	10	1 1		10			ľ			. • .
2-Methylnaphthalene		10 t	ار	'	10	U		10	U 1	10 U			10	1 1		10	. 1 / 1		10			4.8 75
Hexachlorocyclopentadiene		10 1	- 1		10	U		10	U	10 U			10	U		10	1 1		10	1		
2.4.6-Trichlorophenol		10 1	,		10	u		10	U	10 U	1		10	U		10	5 P I		10			
2,4,5-Trichlorophenol		25 1	1	1	25	U		25	U	25 U		1	25	1 1		25	1 1	٠. '	25			٠.
2-Chloronaphthalene		10		ļ	10	U		10	U	10 U		1	10	U		10	l ì		10	_   1		
2-Unioronaphthalene 2-Nitroaniline		25	1	li	25	1 1		25	U	25 U	ı	1	. 25	3 I		25		, .	25		4	
		10		1:	10	1 1		. 10	U	10 U	1	-	10	U		10	. 1		10	. 1		ż
Dimethylphthalate		10			10	1 1		10	U .	10 U	,		10	U		10	U		3/40			
Acenaphthylene		10	- 1		10			10	U	10 U	,		10	υ		10	U		10			.×;
2,6-Dinitrotoluene		25		1	25	1 1		25	1 1	25 U	,		25	u		25	U		2:	5		. i
3-Nitroaniline			<u> </u>	L																		

Station Location	SS-4-20	)	SS-5-1	0	SS-5-	20	SS-7-10	0	SS-7-2	20	SS-9-	10	SS-10-10	)
Sample I.D.	YX346	BG <sup>-</sup>	YX34	7	YX34	18	YX351		YX352	2	YX35	55 D2	YX356 1	
Date of Collection	12/10/9	6	12/10/	96	12/10	/96	12/9/96	5	12/9/9	6	12/9/9	96	12/10/96	 5
Semivolatile Compound	Result	Val Com	Result	Val Con	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result V	al Con
Acenaphthene	410 U		410 U	1	400 t	ال	58 L	J BG	54 L	J B	390 L	ار	390 U	
2,4-Dinitrophenol	1000 U		1000 U		1000 t	J   .	990 U	1 G	1200 U		. 980 t		980 U	.
1-Nitrophenol	1000 U		1000 U		1000 t	ا ار	990 U	1 G	1200 U	·	980 t	اار	980 U	
Dibenzofuran	410 U		410 U		400 t	ال	390 U	1 G	40 L	J B	390 t	اار	390 U	1.:
2,4-Dinitrotoluene	410 U		410 U		400 t	اار	390 U	ر G	480 U		390 L	1   '	390 U	
Diethylphthalate	25 L	J BJ	36 L	J BJ	24 1	J BJ	78 L	J BGJ	480 U		23 I	l Bi	29 L J	J BJ
4-Chlorophenyl phenyl ether	410 U		410 U		400 t	ار	390 U	1 G	480 U		390 t	1 1	390 U	
Fluorene	410 U		410 U		400 t	1 1	140 L	1 BG	98 L	J B	390 t	E I	390 U	
4-Nitroaniline	1000 U		1000 U		1000 t	اار	990 U	J G	1200 U		980 L	i i	980 U	1
4,6-Dinitro-2-methylphenol	1000 U		1000 U		1000 t	1 1	990 U		1200 U	1 G	980 (		980 U	
N-Nitrosodiphenylamine	410 U		410 U		400 t		390 U		550	J G	390 U	1 1	390 U	
4-Bromophenyl phenyl ether	410 U		410 U		400 t	1.	390 U		480 U	-	390 t	1	390 U	
Hexachlorobenzene	410 U		410 U	1 1	400 t	1 1	390 U	RA	480 U	j G	390 t	1 1	390 U	1
Pentachlorophenol	1000 U		1000 U		1000 t		390 L	J BG	1200 U	1 G	980 t	1 1 .	980 U	
Phenanthrene	410 U		410 U		400 t	1 1	600	J G	490	l G	390 L	1 1	390 U	
Anthracene	410 U		410 U	-	400 t	1 1	64 L	J BG	88 L	J BG	390 t	1 1	390 U	
Carbazole	410 U		410 U		400 t		390 U	RA	480 U	J G	390 L	1 1	390 U	
Di-n-butylphthalate	410 U	1 D	410 U	1 D	400 t	ם וו	270 L	J BGJ	480 U	J DG	390 t	1 1	390 U J	J D
Fluoranthene	410 U		410 U	1 1	400 t	ا ا	120 L	J BG	240 L	J BG	390 L	1 1	390 U	, <b>L</b>
Pyrene	410 U		410 U		400 t		200 L	J BG	270 L	J BG	390 L	1 1	390 U	
Butylbenzylphthalate	410 U	1.	410 U	<b> </b>  .	400 t	1 1	1	RA	480 U	R A	390 U	1 1	390 U	
3,3'-Dichlorobenzidine	410 U		410 U		400 U	1 1	1	RA	480 U	RA	390 U	1 1	390 U	ŀ
Benzo(a)anthracene	410 U		410 U		400 t	اار		RA	480 U	RA	390 L	1 1	390 U	1
Chrysene	410 U		410 U		400 t	1 1	1	RA	480 U	1 1	390 L	.]	390 U	
bis(2-Ethylhexyl)phthalate	41 L	J BJ	410 U		47 1	J BJ	750	J GJ	480 U	RA	390 U	1 1 "	130 L J	J BJ
Di-n-octylphthalate	410 U		410 U	1 D	400 t		390 U	J DG	480 U	J DG	390 U	1 1 7 1	390 U	67
Benzo(b)fluoranthene	410 U		410 U	-	400 t	1 1		RA	480 U	1 G	390 U	1 1	390 U	'
Benzo(k)fluoranthene	410 U		410 U		400 t	, l		RA	480 U	1 G	. 390 U	1 1 1	390 U	
Benzo(a)pyrene	410 U		410 U		400 t	1 1		RA	480 U	1 G	390 U		390 U	
ndeno(1,2,3-cd)pyrene	410 U	ĺ	410 U		400 €		{ · · · · - }	RA	480 U	1 G	390 U	1 1 '	390 U	
Dibenz(a,h)anthracene	410 U	ļ	410 U		400 L	1 1	1	RA	480 U	1 G	390 U	1 1 1	390 U	
Benzo(g,h,i)perylene	410 U		410 U		400 L	1		RA	- 480 U	1 G	390 U		l i	
Percent Solids	80 %		80 %		82 %	1 1	84 %		68 %	'   '	390 U 85 %	1 1 1	390 U 85 %	ŀ

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

TABLE 1A

Case No.: 25218 Memo #02

Site:

Victoria Golf Course

Lab.:

American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 10, 1997

Concentration in µg/Kg

Analysis Type:

Low Level Soil Samples

for Semivolatiles

			г		T										
Station Location	SS-4-2	20	SS-5-	·10	SS-5-	20	SS-7-		66.7	20					
Sample I.D.	YX34	6 BG	YX34	47	YX34		YX35	-	SS-7		1	S-9-10		SS-10-	-10
Date of Collection	12/10/	96	12/10		12/10	-	1	-	YX3	_	,   Y	X355 D2		YX356	5 D1
Semivolatile Compound	Result	Val Com	Result	Val Com	Result	Val Com	12/9/9 Result		12/9/	T		2/9/96		12/10/	96
Phenol	410 U		410 1		400 t	<del>   </del>	9400	Val Cor		Val C		-	Com	Result	Val Co
bis(2-Chloroethyl)ether	410 U		410 L		400 (	1 1	1		800		<b>I</b>	90 U		390 U	
2-Chlorophenol	410 U	1	410 L		400 t	1 1	390 U		480 U	1		w u		390 U	
1,3-Dichlorobenzene	410 U		410 L	1	400 t	1 1	390 U		480 t	1 1	39	10 W		390 U	
1,4-Dichlorobenzene	410 U		410 L		400 C	1 [	390 U		.480 t	]	39	ט א		390 U	
1,2-Dichlorobenzene	410 U		410 L	1 1 1		1 1 .	29 L	1 B	50 I	<b>.</b>   1   1	3 39	νυ		390 U	
2-Methylphenol	410 U		410 U	1 1	400 U	1 [	390 U		480 L	기	39	υu		390 U	
2,2'-oxybis(1-Chloropropane)	410 U		410 U	1	400 U	1 1	100 L	J B	480 L	]	39	o U		390 U	
l-Methylphenol	410 U		410 U	1	400 U	l f	390 U		480 L	1	39	ου		390 U	
N-Nitroso-di-n-propylamine	410 U		410 U	1 1 1	400 U	1 1	5900	-	1900		39	0 U		390 U	•
lexachloroethane	410 U		410 U	1 1 1	400 U		390 U		480 U		39	0 U	-	390 U	
litrobenzene	410 U		410 U	1 1 1	400 U		390 U		480 U		. 39	0 U		390 U	
sophorone	410 U		410 U	1 1	400 U		390 U		480 U		39	0 U		390 U	
-Nitrophenol	410 U		410 U	1 1	400 U		390 U		480 U		39	0 U		390 U	
,4-Dimethylphenol	410 U	1 1	410 U	1 1 1	400 U		390 U	ł	480 U		39	o U	1	390 U	
is(2-Chloroethoxy)methane	410 U			1 1 1	400 U		390 U		480 U		39	ט ט	-	390 U	
,4-Dichlorophenol	410 U		410 U		400 U		390 U		480 U		39	טט	. ]	390 U	
,2,4-Trichlorobenzene	410 U		410 U	1 1 1	400 U		390 U		480 U		39	טו	j	390 U	
laphthalene	410 U		410 U		- 400 .U		390 U		480 U		. 390	บ			
-Chloroaniline	410 U		410 U		400 U	.   .	900	ł	1100		390	1 1		390 U	
exachlorobutadiene	410 U		410 U		400 U		390 U		480 U		390	טו		390 U	
-Chloro-3-methylphenol	410 U		410 U		400 U	-  -	390 U		480 U		390	U	1	390 U	
-Methylnaphthalene	410 U		410 U		400 U	1 1	390 U		480 U		390	ט		390 U	
exachlorocyclopentadiene	410 U	1 1	410 U		400 U		250 L	J B	460 L	J B	390			390 U	331
4.6-Trichlorophenol	410 U		410 U		400 U		390 U	ı G	480 U		390	U	.	390 U	
4,5-Trichlorophenol	1000 U		410 U		400 U		390 U	J G	480 U		390	1 1		390 U	
Chloronaphthalene	410 U		1000 U		1000 U	.	990 U	1 G	1200 U		980	U	- 1	980 U	
Nitroaniline	1000 U		410 U		400 U	1 .	390 U	1 G	480 U		390	1 1	[ ]	390 U	
methylphthalate	410 U		1000 U		1000 U	-	990 U	ı G	1200 U		980	1 1 '		980 U	
cenaphthylene	410 U		410 U		400 U		390 U	J G	480 U		390			390 U	
6-Dinitrotoluene	410 U		410 U		400 U		390 U	) G	480 U		390	-1 1		390 U	
Nitroaniline	1000 U		410 U		400 U		390 U	ı G	480 U		390	1		390 U	1
	1000 0		1000 U		· 1000 U		990 U	J G	1200 U	1	980			980 U	

Station Location	SS-1-1	0	SS-1-2	20		SS-2-	ın		00.2.2			_				١.			
Sample I.D.	YX339	DI	YX340					ļ	SS-2-2	-	. SS-3-1			SS-3-2	20		SS-4-10	)	
Date of Collection	12/10/9		12/10/			YX34 12/9/9			YX342	•	YX34:			YX34	4 BG		YX345	BG	
Semivolatile Compound		Val Con		Val (		Result			12/9/96		12/10/			12/10/	<del></del>		12/10/9	6	
Acenaphthene	390 U		390 U		CUM		Val C	om	Result	Val Com	Result	Val C	om	Result	Val Co	m	Result	Val Co	m
2,4-Dinitrophenol	990 U		980 U	l i		380 U 940 U	1 1		420 U		470 U			410 U			390 U		
4-Nitrophenol	990 U		980 U	1 1		940 U 940 U		1	1000 U		1200 U			1000 U			980 U		I
Dibenzofuran	390 U		390 U	i ł		380 U	.		1000 U		1200 U			1000 U		$\cdot$	980 U	İ	
2,4-Dinitrotoluene	390 U		390 U			380 U	'		420 U		470 U			410 U	1 1		390 U		
Diethylphthalate	24 L	J BJ	22 L	,	ВЈ	23 L	, , ,	3.1	420 U	Н	470 U			410 U			390 U	ļ	
4-Chlorophenyl phenyl ether	390 U		390 U		<i>D</i> ,	380 U	,   ,	27	38 L	l Bl	30 L	1	BJ	23 L	JB	J	26 L	J B.	J
Fluorene	390 U		390 U		l	380 U			420 U		470 U			410 U	-	-	390 U		
4-Nitroaniline	990 U		980 U			940 U			420 U		470 U	-		410 U		İ	390 U		
4,6-Dinitro-2-methylphenol	990 U		980 U					- 1	1000 U		1200 U	ļ		1000 U			980 U		Ì
N-Nitrosodiphenylamine	390 U	ŀ	390 U		1	940 U			1000 U		1200 U			1000 U	-		980 U		
4-Bromophenyl phenyl ether	390 U	-	390 U		1	380 U			420 U		470 U		.	410 U			390 U		
Hexachlorobenzene	390 U	İ	390 U			380 U		Ì	420 U		470 U			410 U			390 U		
Pentachlorophenol	990 U		980 U			380 U 940 U		ĺ	420 U	İ	470 U		1	410 U			390 U		
Phenanthrene	390 U	.   '	390 U		1	I I			1000 U		1200 U			1000 U	- 1		980 U		1.
Anthracene	390 U		390 U		1	54 L 380 U	JE	3.	420 U		470 U	j		410 U		- [	390 U		
Carbazole	390 U	- 1	390 U		]	380 U			420 U		470 U			410 U	1	ĺ	390 U		
Di-n-butylphthalate	390 U	J D	390 U		ŀ	380 U			420 U		. 470 U			410 U			390 U		
Fluoranthene	390 U	.   _	390 U			38 U	l E	- 1	420 U	1 D	470 U	J	D	410 U	1 D		390 U	l D	
Pyrene	390 U	•	390 U	,	F	61 L	·   ~		420 U		470 U		- 1	410 U	1		390 U		
Butylbenzylphthalate	390 U	j	390 U	1	1	32 L	J B	i i	420 U		470 U			410 U	1.		390 U		
3,3'-Dichlorobenzidine	390 U		390 U			380 U	,   B	١,	420 U		470 U	ĺ	ļ	22 L	l Bi	.	390 U		
Benzo(a)anthracene	390 U		390 U		İ	380 U	İ		420 U		470 U			410 U	1		390 U		
Chrysene	390 U		390 U	1	ŀ	38 L	I B		420 U		470 U	-		410 U	ļ		390 U		
bis(2-Ethylhexyl)phthalate	390 U	İ	88 L	,   ,	BJ	2300	·   "		420 U		470 U			410 U			390 U		
Di-n-octylphthalate	390 U	J D	] [	- 1	F	380 U	[]	'	420 U				IJ	40 L	l Bi		49 L	BJ	
Benzo(b)fluoranthene	390 U		390 U	1	1	- 380 U	İ		420·U		[	J   [	)	410 U			390 U J	D	
Benzo(k)fluoranthene	390 U	-	390 U			380 U			420 U		470 U			410 U			390 U		
Benzo(a)pyrene	390 U	ı	390 U			380 U			420 U		470 U	Ì		410 U	ĺ		390 U		
Indeno(1,2,3-cd)pyrene	390 U		390 U			380 U			420 U		470 U			410 U	Ì		390 U		1
Dibenz(a,h)anthracene	390 U		390 U			380 U			420 U		470 U			410 U			390 U		
Benzo(g,h,i)perylene	390 U	-	390 U			380 U			420 U		470 U			410 U			390 U	,	
Percent Solids	84 %		85 %		-	Į.			420 U		470 U			410 U			390 U ^	7	
Val-Validity. Refer to Data Qualifiers in			65 70	l		88 %			79.%	1 1	70 %	- 1	i	81 %	- 1	1	85 %		}

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1A

Case No.: 25218 Memo #02 Site:

Victoria Golf Course

Lab.:

Date:

American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

February 10, 1997

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentration in µg/Kg

										· · ·				
Station Location	SS-1-10		SS-1-20	0 '	SS-2-1	0	SS-2-20	)	SS-3-10		SS-3-2	20	SS-4-10	0
Sample I.D.	YX339	D1	YX340	)	YX34	1 D2	YX342		YX343 I	BG	YX34	4. BG	YX345	BG
Date of Collection	12/10/96		12/10/9	96	12/9/9	6	12/9/96	l	12/10/96		12/10/	/96	12/10/9	96
Semivolatile Compound	Result \	al Com	Result	Val Com	Result	Val Com	Result	Val Com	Result V	al Com	Result	Val Com	Result	Val Com
Phenol	390 U		390 U		380 U		420 U		470 U		410 U	<b>,</b>	390 U	
bis(2-Chloroethyl)ether	390 U		390 U		380 U		420 U		470 U	İ	410 L	J	390 U	
2-Chlorophenol .	390 U		390 U		380 U		420 U		470 U		410 U	,	390 U	
1,3-Dichlorobenzene	390 U		390.U		380 U		420 U		470 U		410 L	ן	390 U	
1,4-Dichlorobenzene	390 U		: 390 U		380 U	1	420 U	l	470 U		410 L	,	390 U	
1,2-Dichlorobenzene	390 U		390 U		380 U	1 1	. 420 U		470 U		410 L	ון	390 U	
2-Methylphenol	390 U	1	390 U		380 U	<b>1</b> .	420 U		470 U		410 L	ן	390 U	
2,2'-oxybis(1-Chloropropane)	390 U		390 U		380 U	1	420 U		470 U		410 L	ון	390 U	
4-Methylphenol	390 U	1.	390 U		380 U		420 U	ŀ	470 U		410 L	J	390 U	
N-Nitroso-di-n-propylamine	390 U		390 U		380 U		420 U		470 U		410 L	<b>)</b>	390 U	
Hexachloroethane	390 U		390 U		380 U	1	420 U		470 U		. 410 L	J .	390 U	
Nitrobenzene	390 U		390 U		380 U	-	420 U		470 U		410 L	J	390 U	
Isophorone	390 U	1	390 U		380 U		420 U	1	470 U		410 L	J	390 U	
2-Nitrophenol	390 U	-	390 U		380 U		420 U	·	470 U	ł	410 L	J	390 U	
2,4-Dimethylphenol	390 U	}	390 U		380 U		420 U		470 U		410 t	ן	390 U	
bis(2-Chloroethoxy)methane	390 U		390 U		380 U	1 - 1	420 U		470 U		410 L	ון	- 390 U	
2,4-Dichlorophenol	390 U		390 U		380 L		420 U		470 U	-	410 t	ا ا	390 U	
1,2,4-Trichlorobenzene	390 U	1	390 U		380 t		420 U		470 U		410 L	J	390 U	
Naphthalene	390 U		390 U		380 L	<u> </u>	420 U		470 U	-	410 L	J	390 U	.
4-Chloroaniline	390 U		390 U		380 t	,	420 U	1.	470 U		. 410 L	J .	390 U	
Hexachlorobutadiene	390 U		390 U		380 L	ı	420 U		470 U	ĺ	410 U	ا ار	- 390 U	
4-Chloro-3-methylphenol	390 U		390 U		380 L	/ I	420 U		470 U		410 t	J	390 U	
2-Methylnaphthalene	390 U		390 U		380 L	/	420 U		470 U		410 t	J .	390 U	
Hexachlorocyclopentadiene	390 U		390 U		380 t	ון	420 U		470 U		410 L	J	390 U	•
2,4,6-Trichlorophenol	390 U		390 U		380 t	ı l	420 U		470 U	-	410 U	]	390 U	
2,4,5-Trichlorophenol	990 U		980 U		940 t	7	1000 U		1200 U		1000 L	ال	980 U	
2-Chloronaphthalene	390 U		390 U		380 t	J .	420 U		470 U		410 t	J	390 U	
2-Nitroaniline	990 U		980 U	1 [	940 t	,	1000 U		1200 U		1000 t	J	980 U	
Dimethylphthalate	. 390 U		390 U		380 U	<i>,</i>	420 U		470 U		410 U	J	390 U	
Acenaphthylene	390 U		390 U	1 1	380 t	ו	420 U	1	470 U		410 L	ן ו	390 U	•
2,6-Dinitrotoluene	390 U		390 U		380 U	л .	. 420 U		470 U		410 t	J	390 U	
3-Nitroaniline	990 U		980 U	.	940 t	J	1000 U		1200 U		1000 t	]	980 U	

Station Location	SS-6-	10	SS-8	10	SS-8	-20		Metho	d Blank							
Sample I.D.	YX34	9	YX3	53	YX3	54		SBLK		CB	QL		,			
Date of Collection	1/8/97	,	1/8/9	7	1/8/9		ļ		_		ŲΣ				;	
Semivolatile Compound	Result	Val Co	m Result	Val Com	Result	ValC	om	Result	Val Co	n Result	v	ol Com	Result	Vai Co	n Result	Val Con
Acenaphthene	450 U		390	J	120		Α	330 U		330			Ittsuit	V 41 CU	ii Acsult	Val Con
2,4-Dinitrophenol	1100 U	] ] [	990 1	l l E	1000	1 1	E	830 U	F 1	830	ł			1   .		
I-Nitrophenol	1100 U	JE	990 (	· {	1.000		E	830 U	1 1	830		1.				
Dibenzofuran	450 U	1	390 1	1 1	54		Α	330 U	1 1	330	1					
2,4-Dinitrotoluene	450 U	l l I	390 1	J J E	420	1 1	EG	330 U		330						
Diethylphthalate	450 U		390 1	J	35	ווו	АН	330 U		330						
i-Chlorophenyl phenyl ether .	450 U		390 1	ار	420	1 1		330 U		330	1			1   .		1
luorene	49 L	J/ A	. 390.1		150	1 1	A	330 U		330	l l					
I-Nitroaniline	1100 U	JE	990 i	J J E	1000	1 1	E	830 U		830	i i			1 1	İ	
1,6-Dinitro-2-methylphenol	1100 U		990 1	ار	1000	u l	.	830 U		830						
N-Nitrosodiphenylamine	450 U		390 t	J	420	1 !	- 1	330 U		330	1				Region et	h h bakhuu,
-Bromophenyl phenyl ether	450 U		390 (	ıl l	420	1 . 1	1	330 U		330	- 1					32
lexachlorobenzene	450 U		390 t	,	420	u	ļ	330 U		330	- 1					
'entachlorophenol	1100 U		990 t	,	1000	U	- 1	830 U		830						
henanthrene	120 L	J A	390 (	,	1400			330 U	ľ	330	1					
Anthracene	450 U		390 €	,	550		1	330 U	.	330	- 1		·			
Carbazole	450 U		390 l	,	410 1	נן ז	A	330 U	ĺ	330	ì					1 1 1 1 1 1
Di-n-butylphthalate	2000		390 t	,	420 1	1 }	c	330 U		330	- 1		100			
luoranthene	46 L	J A	390 t	,	2100			330 U	ĺ	330	í		•		1. * 5%	
yrene	42 L	J A	. 390 t		1300		G	330 U	ļ	330						
Butylbenzylphthalate	450 U		390 t	1.	420 t	u I		330 U		330	1				1 2 2 2 1	
,3'-Dichlorobenzidine	450 U		390 U	1	420 t	u	.	330 U		330	- 1		1.5			
Benzo(a)anthracene	450 U		390 t	1	980		Ī	330 U		330	1		·			
Chrysene	40 L	JA	390 L	-	1000			330 U		330	- 1					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
is(2-Ethylhexyl)phthalate	2000	Н	390 L	J C	16000			27 L	JAC	1 .	i				1 25 5 6 7	N in
i-n-octylphthalate	43. L	JAI	I 390 L		420 t	ا ار	1	330 U		330			of tyr twy	-	NUMBER OF	
enzo(b)fluoranthene	450 U		390 L		670			330 U	İ	330						1 4 51,888
enzo(k)fluoranthene	450 U		390 L		630			330 U		330					7 m	
enzo(a)pyrene	450 U		390 L		830			330 U		330		•				
deno(1,2,3-cd)pyrene	450 U		390 U		420			330 U		330					Taget at	r er jar er
ibenz(a,h)anthracene	450 U	1	390 U		250 L	ر ا ر اِ	A	330 U		330		•	13.0			
enzo(g,h,i)perylene	450 U		200 1		440	'		330 U		330						
ercent Solids	73 %	'	84 %	l 1º 1	79 %			N/A		N/A	ł		10 J. S. W.			

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

**BG-Background Sample** 

Case No.: 25268 Memo #01

Site: Lab.: Victoria Golf Course

Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date:

February 21, 1997

Analysis Type: Low Level Soil Samples

for Semivolatiles

Concentration in  $\mu g/Rg$ 

Station Location Sample I.D. Date of Collection Semivolatile Compound	SS-6-10 YX349 1/8/97 Result Val Com		SS-8-10 YX353 1/8/97		SS-8-20 YX354 1/8/97		Method Blank SBLK2		CRQL								
Phenol	450 U	V MI CON		Val Com	Result	Val Com	Result	Val Com	Result	Val (	om	Result	Va	Com	Result	17.0	Cor
ois(2-Chloroethyl)ether	450 U		390 t	1 1	420 L	1 (	330 t	J	330				<del>  -</del>	-	result	- V M)	Col
-Chlorophenol	450 U		390 U	1 1	420 L	1 1	330 (	<i>i</i>	330				1				
,3-Dichlorobenzene	450 U		390 U	1 1 1	420 U	1 1	330 t	<i>i</i>	330		-				1		
.4-Dichlorobenzene	61 L	JA	390 L	1 1 1	420 U	1 1	330 L	1	330				-	- 1	18. d. 1941		
,2-Dichlorobenzene	450 U	JA	390 U	J 1 1	44 L	JA	330 U	,	330		1				Valoria (		
-Methylphenol	1 1		390 U	1 1 1	34 L	JA	330 U		330						y iki yayeti.		
,2'-oxybis(1-Chloropropane)	450 U	1 .	390 U	1 1	420 U		330 U		330		- 1	,		1 1			
-Methylphenol	450 U 450 U		390 U	1 1 . 1	420 U	1	330 U		330					, 1	100		· .
l-Nitroso-di-n-propylamine	1		390 U		240 L	JA	330 U		330		-		1	. 1			
lexachloroethane	450 U	1	390 U	1 1	420 U		330 U		330			3					
itrobenzene	450 U	-	390 U		420 U		330 U		330		ļ			***	x 24 30 0 1		
sophorone	450 U	İ	390 U		420 U		330 U		330			•				100	
-Nitrophenol	450 U		390 U		420 U	ŀ	330 U		330								
4-Dimethylphenol	450 U		390 U		420, U		330 U		330								
s(2-Chloroethoxy)methane	450 U		390 U		420 U		330 U		330		- 1				. * * * * * * * * * * * * * * * * * * *	1	
4-Dichlorophenol	450 U		390 U		420 U		330 U		330						91 67.2.87	100	## 2" 
2,4-Trichlorobenzene	450 U	1.	390 U		420 U		330 U		330								H.
aphthalene	450 U	_   '	390 U		420 U		330 U		330		.		.		1.00		
Chloroaniline	200 L	JA	390 U		190 L	JA	330 U		330							· .	-
exachlorobutadiene	450 U		390 U		420 U		330 U		330			.±1]		- [.	rosativa d		
Chloro-3-methylphenol	450 U		390 U		420 U		330 U		330		- 1						
Methylnaphthalene	450 U	_   _	390 U		420 U		330 U		330		- 1		.		wigan ka ma	ls. [	
xachlorocyclopentadiene	1	I   'A	390 U		130 L	JA	330 U	1 1	330					:			
6-Trichlorophenol	450 U		390 U		420 U		330 U		330				}		a ş.	TIN I	; .
,5-Trichlorophenol	450 U	1 1	390 U		420 U		330 U		330		-			.			
Chloronaphthalene	1100 U		990 U		1000 U		830 U		830		1.				648),144.		
Vitroaniline	24 L J	A	390 U		420 U		330 U		330					- e d 1			# * * #-
nethylphthalate	1100 U		990 U		1000 U		830 U		830	:			-				
enaphthylene	46 L J	AH	390 U		420 U		330 U		330								
-Dinitrotoluene	450 U	1 1	390 U		420 U		330 U		330			. 1					1
litroaniline	450 U	1 1	390 U		420 U		330 U		i i							i li	
помине	1100 U		990 U		1000 U		830 U		330 830	-		İ		1			1

Lockheed Martin Environmental Services

**Environmental Services Assistance Team, Region 9** 

301 Howard Street, Suite 970, San Francisco, CA 94105

Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO:

Rachel Loftin

Site Assessment Manager

States Planning and Assessment Office, SFD-5

THROUGH:

Kose Rose Fong

ESAT Regional Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Jack Berges 🔊

Team Manager

Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005 Work Assignment No.: 09-96-0-4 Technical Direction No.: 9604113

DATE:

February 14, 1997

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE:

Victoria Golf Course

SITE ACCOUNT NO.:

zz

CAD980818926 CERCLIS I.D. NO.:

CASE NO .:

25218 Memo #03

SDG NO .:

MYX292

LABORATORY:

Analytical Resources, Inc. (ARI)

ANALYSIS:

Total Metals

SAMPLE NO.:

6 Water and 14 Soil Samples (See Case Summary)

COLLECTION DATE:

December 9 through 12, 1996

REVIEWER:

Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585, or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Bruce Woods, TPO USEPA Region 10

[ ]Attention TPO: [ ]FYI

[X] Action

SAMPLING ISSUES: [ ] Yes [X] No



#### Data Validation Report

Case No.:

25218 Memo #03

Site:

Victoria Golf Course

Reviewer:

Laboratory: Analytical Resources, Inc. (ARI) Dina David-Bailey, ESAT/Lockheed

Date:

February 14, 1997

I. Case Summary

SAMPLE INFORMATION:

SAMPLE #: Water:

MYX292, MYX294, and MYX297 through

MYX300

Soil:

MYX308 through MYX317, MYX320,

MYX321, MYX324, and MYX325

COLLECTION DATE:

December 9 through 12, 1996

SAMPLE RECEIPT DATE: December 13, 1996
CONCENTRATION & MATRIX: Low Concentration Groundwater and Soil

FIELD QC:

Field Blanks (FB): None

Equipment Blanks (EB):

MYX299, MYX300, MYX301\*, and MYX302\*

(\*see Additional Comments)

Background Samples (BG): MYX294 and MYX312 through MYX315

Duplicates (D1): MYX308 and MYX325

(D2): MYX310 and MYX324

LABORATORY QC:

Matrix Spike:

MYX292 (Water) and MYX311 (Soil)

Duplicates:

MYX292 (Water) and MYX311 (Soil)

ICP Serial Dilution: MYX292 (Water) and MYX311 (Soil)

ANALYSIS: Total Metals

Analyte

Sample Preparation and Digestion Date

Analysis Date

ICP Metals

December 31, 1996 and

January 9, 1997

January 2, 1997

GFAA:

December 31, 1996 and Arsenic

January 10 and 13, 1997

Lead

January 2, 1997 December 31, 1996 and

January 10, 1997

January 2, 1997

Selenium

December 31, 1996 and

January 9 and 10, 1997

Thallium

January 2, 1997 December 31, 1996 and

January 9, 1997

January 2, 1997

Mercury

December 30, 1996 and

January 2, 1997

January 2, 1997

Percent Solids

Not Applicable

December 31, 1996

#### TPO ACTION:

The results reported for antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325 and for selenium in water samples MYX292, MYX294, MYX297, and MYX298 are considered unacceptable as less than 30% of the matrix spike was recovered. See Comment A.

#### TPO ATTENTION:

None.

### SAMPLING ISSUES:

None.

#### ADDITIONAL COMMENTS:

\*The results for equipment blank samples MYX301 and MYX302 are included in Case 25218 Memo #04, SDG MYX293.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. Laboratory blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (SOW), ILMO4.0, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994.

#### II. Validation Summary

The data were evaluated based on the following parameters:

Para	<u>meter</u>	<u>Acceptable</u>	Comment
1. 2. 3.	Data Completeness Sample Preservation and Holding Times Calibration a. Initial Calibration Verification b. Continuing Calibration Verificatio c. Calibration Blank	Yes Yes Yes	ī
4.	<ul><li>d. CRDL Standard</li><li>Blanks</li><li>a. Laboratory Preparation Blank</li><li>b. Field Blank</li></ul>	Yes	
5. 6. 7. 8. 9.	c. Equipment Blank ICP Interference Check Sample Analysis Laboratory Control Sample Analysis Spiked Sample Analysis Laboratory Duplicate Sample Analysis Field Duplicate Sample Analysis GFAA QC Analysis a. Duplicate Injections	Yes Yes No No No No	A,B D H E
11. 12. 13.	<ul><li>b. Analytical Spikes</li><li>c. Method of Standard Addition</li><li>ICP Serial Dilution Analysis</li></ul>	No Yes Yes	F C,G

### III. Validity and Comments

- A. The following results are rejected because of matrix spike recovery results outside method QC limits. The results are flagged "R" in Table 1A.
  - Antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325
  - Selenium in water samples MYX292, MYX294, MYX297, and MYX298

The matrix spike recovery results for antimony in QC sample MYX311 and for selenium in QC sample MYX292 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

# LOCKHEE AARTIN

<u>Analyte</u>	MYX311 Soil % Recovery	MYX311 Soil % Bias
Antimony	28	-72
<u>Analyte</u>	MYX292 Water <u>% Recovery</u>	MYX292 Water % Bias
Selenium	29	-71

The results reported for antimony and selenium in the samples listed above were below the method detection limit (MDL) and instrument detection limit (IDL), respectively, and are considered unacceptable as less than 30% of the matrix spike was recovered. The low matrix spike recovery indicates an analytical deficiency and false negatives may exist.

According to the ILM04.0 Inorganic SOW, when the pre-digestion spike recovery results for ICP analytes (except silver) fall outside the control limits of 75-125%, a post-digestion spike must be performed for those elements that do not meet the specified criteria. A post-digestion spike recovery result of 107% was obtained for antimony in QC sample MYX311. Since the post-digestion spike recovery was acceptable, the low pre-digestion spike recovery result of 28% obtained for antimony may indicate sample nonhomogeneity, poor laboratory technique or matrix effects which may interfere with accurate analysis, depressing the analytical result.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement methodology.

- The following results are estimated because of matrix spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.
  - Antimony in soil samples MYX308 and MYX316
  - Mercury in water samples MYX292, MYX294, MYX297, and MYX298
  - Selenium and zinc in all of the soil samples

The matrix spike recovery results for antimony, selenium, and zinc in QC sample MYX311 and for mercury in QC sample MYX292 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

Analyte	MYX311 Soil <u>% Recovery</u>	MYX311 Soil <u>% Bias</u>
Antimony Selenium Zinc	28 67 260	-72 -33 +160
<u>Analyte</u>	MYX292 Water % Recovery	MYX292 Water % Bias
Mercury	37	J -63

# LOCKHEEDMARTIN

Results above the IDL or the MDL are considered quantitatively uncertain. The results reported for antimony in soil samples MYX308 and MYX316 may be biased low. Since the results reported for mercury in water samples MYX292, MYX294, MYX297, and MYX298 and for selenium in all of the soil samples are nondetected, false negatives may exist. The results reported for zinc in all of the soil samples may be biased high.

According to the ILM04.0 Inorganic SOW, when the pre-digestion spike recovery results for ICP analytes (except silver) fall outside the control limits of 75-125%, a post-digestion spike must be performed for those elements that do not meet the specified criteria. Post-digestion spike recovery results of 107% for antimony and 94% for zinc were obtained in QC sample MYX311. Since the post-digestion spike recoveries are acceptable, the low pre-digestion spike recovery of 28% obtained for antimony and the high pre-digestion spike recovery of 260% obtained for zinc may indicate sample nonhomogeneity, poor laboratory technique or matrix effects which may interfere with accurate analysis, enhancing or depressing the analytical result.

A 74% recovery was obtained for arsenic in the matrix spike analysis of QC sample MYX311. This percent recovery, though marginally below the 75-125% criteria for accuracy, is not expected to significantly affect the results reported for arsenic in any of the soil samples.

- C. The following results are estimated and are flagged "J" in Table 1A.
  - All results above the instrument detection limit or the method detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the IDL for waters or the MDL for soils but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- D. The following results are estimated because of laboratory duplicate results outside method QC limits. The results are flagged "J" in Table 1A.
  - Barium in all of the soil samples

Laboratory duplicate results did not meet the  $\pm 35$  relative percent difference (RPD) and  $\pm 2X$  CRDL criteria for precision as listed below.

MYX311 Soil

Analyte

RPD

Barium

70

The results reported for barium in all of the soil samples are considered quantitatively uncertain.

Duplicate analyses demonstrate the analytical precision obtained for each sample matrix. The imprecision between duplicate results may be due to sample nonhomogeneity, poor laboratory technique, or method defects.

# LOCKHEE

- E. The following results are estimated because of GFAA analytical spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.
  - Selenium in samples MYX294, MYX297, MYX308 through MYX317, MYX320, and MYX321
  - Thallium in samples MYX298, MYX313, and MYX315

The analytical spike recovery results for selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	Sample Number	<pre>% Recovery</pre>	<pre>% Bias</pre>
Selenium	MYX294	83 .	-17
	MYX297	65	-35
	MYX308	83 .	-17
	MYX309	83	-17
•	MYX310	81	-19
•	MYX311	65	-35
	MYX312	84	-16
	MYX313	40	-60
	MYX314	82	-18
	MYX315	58	-42
	MYX316	81	-19
	MYX317	80	-20
• ,	MYX320	70	30
	MYX321	50	-50
Thallium	MYX298	80	-20
	MYX313	56	-44
	MYX315	60	-40

The post-digestion spike recovery results for selenium and thallium, as noted above, show an analytical deficiency. Since the results reported for selenium and thallium in the samples listed above are nondetected, false negatives may exist.

The post-digestion analytical spike recovery results of 58% in duplicate sample MYX311 for selenium and 42% in duplicate sample MYX311 for thallium also did not meet the 85-115% criteria for accuracy.

It should be noted that the results for selenium in samples MYX294 and MYX297 were previously rejected. Please refer to Comment A.

Arsenic, lead, selenium and thallium were analyzed by the graphite furnace atomic absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination.

- F. The following results are estimated because of ICP serial dilution results outside method QC limits. The results are flagged "J" in Table 1A.
  - Copper in all of the soil samples

The percent difference of the ICP serial dilution analysis of sample MYX311 did not meet the 10% criterion for the analyte shown below.

MYX311 Soil

Analyte

% Difference

Copper

13

The results reported for copper in all of the soil samples are considered quantitatively uncertain. Chemical and physical interferences may exist due to sample matrix effects.

A five fold dilution of the laboratory QC sample is performed in association with the ICP procedure to indicate whether interference exists due to sample matrix effects. If the analyte concentration is sufficiently high (minimally a factor of 50 above the IDL in the original sample), the five fold serial dilution must agree within 10% of the original results after correction for dilution.

- G. The following samples were diluted and the quantitation limits for the analytes shown below have been raised.
  - Lead in sample MYX298
  - Selenium in samples MYX292, MYX298, MYX308 through MYX310, MYX312, MYX314, MYX316, MYX317, MYX324, and MYX325
  - Thallium in samples MYX308 through MYX312, MYX314, MYX316, MYX317, MYX320, MYX321, MYX324, and MYX325

Sample MYX298 for lead was reanalyzed at a five-fold dilution because of a high background obtained in the initial undiluted analysis. The samples listed above for selenium and thallium were diluted by a factor of five because the spike recovery obtained in the original analysis was less than 40%. The low percent recovery obtained for selenium and thallium may be due to chemical or physical interferences. Dilution of the samples is performed to reduce any matrix interferences which may be present and which may be responsible for the low analytical spike recovery. The quantitation limits reported in Table 1A for lead, selenium, and thallium in the samples listed above were raised by the dilution factor.

Note that the results for arsenic in the diluted analyses of samples MYX310 and MYX314 are between the MDL and the CRDL. Therefore these results, which are greater than the CRDL when multiplied by the dilution factor, have been flagged "L" (see Comment C).

It should be noted that the results for selenium in samples MYX292 and MYX298 were previously rejected. Please refer to Comment A.

Analytical spikes are post-digestion spikes prepared prior to analysis by adding a known quantity of the analyte to an aliquot of the digested sample. Arsenic, lead, selenium, and thallium were analyzed by the GFAA technique, which requires the analysis of analytical spikes.

# LOCKHEEDMARTIN

H. In the analysis of the field duplicate pairs, the following RPDs were obtained for the analytes listed below.

MYX310 MYX324 <u>RPD</u>	_
122	
72	
. 167	
182	
165	
	MYX324 <u>RPD</u> 122 72 167 182

The results are expected to vary more than laboratory duplicates ( $\pm 35$  RPD or  $\pm 2X$  CRDL criteria for precision) since sampling variability is included in the measurement. The effect on the quality of the data is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, sample nonhomogeneity, poor sampling or laboratory technique, or method defects.

I. A low recovery of 60% was reported for mercury in the analysis of the CRDL standard (CRA) for soils. While there are no criteria established for CRDL standard recoveries, low recoveries indicate uncertainty for sample results near the CRDL. The low CRA recovery may indicate low bias and possible false negatives for mercury results in all of the soil samples except sample MYX320.

# ANALYTICAL RESULTS TABLE 1A

Case No.: 25218 Memo #03

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

Concentration in µg/L

Station Location  Sample I.D.  Date of Collection	GW-2-1 MYX29 12/9/96			GW-4-1 MYX29- 12/12/96		î	GW-9-1 MYX291 12/10/96			GW-10-1 MYX298 12/11/96		-	GW-11-1 MYX299 12/9/96	EB		GW-12-1 MYX300 12/10/96	EB		Lab Blar		
Parameter	Result	Val	Com	Result		Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Alameter	i		33-											10000000	000000000000000000000000000000000000000		eserce e		202000000000000000000000000000000000000		1000000
Aluminum	20.0 l	j		82.0 L	J	c	20.0 U			20.0 U			34.9 L	J	C	20.0 U			20.0 L	100000	
Antimony	50.0 U	SQ 50000.17	**************************************	50.0 L	J		50.0 U	1		50.0 U	.0000001	-00000000000000000000000000000000000000	50.0 U	10000000	*********	50.0 U	30000		50.0· U	000000	
Arsenic	6.6 I	J	c	10.4			6.8 L	J	C	1.2 L	J	c	1.0 U			1.0 U			1.0 L	1	
Barium	95.7 I	.,	С	103 I	J	C	60.2 L	J	С	34.7 L	J	c	1.0 U	10000	1000000000	1.0 U			-1.0 U	10000	40000
Beryllium	1.0 T	o-10000000		1.0 l	J		1.0 L			1.0 U			1.0 U	T		1.0 U			1.0 L	100000	1
Cadmium	2.0 โ		AAAAAAAAAAAA	2.0 €	J		2.0 L	1	constraint to	2.0 U	10000000	2000000000000000	2.0 U	0.000000	100000000000000000000000000000000000000	2.0 U	0000000		2.0 U	al seeds	2 22 22 22
Calcium	1020000			46300			467000			1100000			211 L	******	C	26.8 L	J	C	20.0 l		
Chromium	5.0 1	ار	.,,,,	5.0 U	J		5.0 L	J		5.0 U	0400000	200000000000000000000000000000000000000	5.0 U	decesso	100000000000000000000000000000000000000	5.0 U			5.0 U	0.000000	1
Cobalt	3.0 1	31 35 35 35		3.0 T	J		3.0 U	I		3.0 U			3.0 C			3.0 U			3.0 l	, ,,,,,,,,	
Соррег	2.0 1			2.0 U	J		2.0 U	J		2.0 U	<b>t</b> o.co.co	beeesee66666	7.0 L	8 88888	C	2.0 U			2.0 U	0.00000	
lron	1820			56.5 1	J	C	20.0 L	1		18200			22,7 I	400000	C	20.0 U	1		20.0 l		
Lead	1.0	U	e e susua nuncionalida	1.0 T	IJ		1.0 U	J		5.0 U		G	1.0 U	deces	e <b>l</b> 2000000000000000000000000000000000000	1.0 U	desses		1.0 (	: <b>1</b> 2222	
Magnesium	260000			15900			119000			327000			67.0 I		С	20.0 U	4		20.0 1	000000	
Manganese	2690			154	-		676			1970	******		1.0 U	8 88 88 88 88 88 88 88 88 88 88 88 88 8	200000000000000000000000000000000000000	1.0 U	1000000		1.0 (	:: 1989a	
Mercury	0.10	נ וט	В	0.10 1	U J	В	0.10 (	J	В	0.10 L	J	В	0.10 t	4		0.10 U			0.10 1		
Nickel	10.0	3000000		10.0	U		10.0 U	J		10.0 L			10.0 U	J	83 000000000000000000000000000000000000	10.0 U	10.00000		10.0		
Potassium	18300			6050			10200			21000			400 T			400 L			400 1		
Selenium	5.0	UR	AG	1.0	UR	AE	1.0 U	J R	AE	5.0 L	R	AG	1.0 ₹	J		1.0 L			1.0	QC 00000	
Silver	3.0	9001000000		3.0	U		3.0 (	J		3.0 U	I		3.0 T	J		3.0 L			3.0	.,,,,,,,,,,,,	
Sodium	580000	(20000000	00000000000	54800			227000		]	1380000			432 1	LJ	C	50.0 U	0.0000000		50.0	20 0000	
Thallium	1.0	U		1.0	U		1.0	J		1.0 U	J J	E	1.0 1	J		1.0 L			1.0		
Vanadium	2.0	000000000	. E. 000000000000	2.0	U		7.0	L J	С	2.0 U	J	4555555577	2.3 1	L J	C	2.3 I		C	2.0	494000	
Zinc	98.5			4.0	u		53.1			64.6			4.0 1	U		4.0 t	J		4.0	U	
Line		40400000	opecce (1004)	10.000000000000000000000000000000000000							J			88 5552				1			
		000	SEP\$00000000000										Januari da de la compansión de la compan	otrastatio			ed (2003)	Sarce States			
										1		1									

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample CRDL-Contract Required Detection Limit

# ANALYTICAL RESULTS

TABLE 1A

Case No.: 25218 Memo #03

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

· Concentration in µg/L

															•						
Sample I.D.	IDL			CRDL																	
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Va	l Com	Result	V:	al Con	Result	Va	d Com	Result	Val	Con
Aluminum	20.0			200																	
Antimony	50.0			60.0							000000000000000000000000000000000000000	*******		::::::::::::::::::::::::::::::::::::::							8
Arsenic	1.0			10.0																	
Barium	1.0			200	oo oo oo		100000000000000000000000000000000000000	00000 000000	0.0000000000000000000000000000000000000			30 F000 100000		88888							
Beryllium	1.0			5.0																	1000000
Cadmium	2.0	00004000000	2000000000000	5.0		6 0000000000															
Calcium	20.0			5000		1				1										\$4.50 <b>(</b> 3.50 (3.5	100000
Chromium	5.0	4900 000000	0.0000000000000000000000000000000000000	10.0	33. 33.33																
Cobalt	3.0			50.0																P0200 P0000	\$10000000
Соррег	2.0	000000000000000000000000000000000000000		25.0	***				1												
Iron	20.0			100													(2000)	040-000000000	\$ 000000000000000000000000000000000000	5000000	
Lead	1.0	4555 000000	4/20/2003/2003	3.0	88 8883																
Magnesium	20.0			5000													800000000000000000000000000000000000000		0 1000000000000000000000000000000000000	500000 <b>p</b> 00000	.capasseve
Manganese	1.0	80000 000000bb		15.0		desses															
Mercury	0.10			0.20													300000000	50000000000		000000	
Nickel	10.0	90000 00000		40.0																	
Potassium	400	*****		5000											33330	3000 (000000000000000000000000000000000	200000000 Q	*****			
Selenium	1.0	200000-000000		5.0																	
Silver	3.0			10.0 5000						400000000000000000000000000000000000000	0.000001	200. 0000000000		1000000 (00	50000 <b>0</b> 000000						
Sodium	50.0	500000 000000		10.0																	
Thallium	1.0			50.0						p. <b>P.</b> 100 p. 1	4.0000000000000000000000000000000000000	00040000000	ecapococococo	v.:00000 00	AAA (1999)						
Vanadium	2.0 4.0		1	20.0																	
Zinc	4.0			20.0	::::::::::::::::::::::::::::::::::::::	:: [8000000			0.4500.0000	55 05/50*00*0040000000	.0000000								v		.000,000,000
		50600 <b>(</b> 56600			2000012000	004000000000								in recipion in			0.0000000000000000000000000000000000000	(100)		edana kata	. SEC. SEC. SEC.

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample
CRDL-Contract Required Detection Limit

# ANALYTICAL RESULTS

TABLE 1A

Case No.:

25218 Memo #03

Site:

Victoria Golf Course

Lab.:

Analytical Resources, Inc. (ARI) Dina David-Bailey, ESAT/Lockheed

Reviewer: Date:

February 14, 1997

Analysis Type:

Low Concentration Soil

Samples for Total Metals

Concentration in mg/Kg

Station Location Sample I.D. Date of Collection	SS-1-10 MYX30 12/10/96	8 D1		SS-1-20 MYX30 12/10/96			SS-2-10 MYX31 12/10/90	0 D2		SS-2-20 MYX31 12/10/96			SS-3-10 MYX312 12/10/96	j		SS-3-20 MYX313 12/10/96			SS-4-10 MYX314 12/10/96	5	G Com
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Vai	Com
					1000000	00000000000	upper (0.00000000000000000000000000000000000			000000000000000000000000000000000000000	10.000			 		1.5700			22800		
Aluminum	28300			25400			25700			14100			32500			15700 11.4 U	R	A	11.1 U	I R	A
Antimony	13.6 I	J	BC	11.8 <b>L</b>	J R	A	11.2 U	Marketon.	Α	12.5 U	R	A	12.3 U	J K	A	5.9		^	4.4 L	1000000	cG
rsenic	5.0			5.5			3.2 1	. J	CGH	4.5			5,9			3.9 115		D	127	J	D
Barium	158	J	D	202	J	D	212	J	D	233	J	D	184	J	D	0.47 L		c	0.57 L	000000	c
Beryllium	0.83 1	J	c	0.66 1	J	C	0.70 1		C	0.40 L	1	c	0.87 L		C	-666-966-967-5 savana sasanas	1	0	0.50 L		c
Cadmium	0.47 U	J		0.63 I	J	c	0.48 1	LJ	С	1.0 L	.  J	C	0.51 L	.  J	C	0.46 U	ባ \$		14500		
Calcium	7660			12400			9160		H	9090			12200			4090			27.3	30000	
Chromium	33.7			34.8			30.7			29.5	500000		40.5			37.7			11.4		
Cobalt	15.9			14.4			12.6			7.9 I	. J	C	16.5			8.9 L	10000	c	26.7		F
Copper	36.8	J	F	34.2	J	F	31.1	J	FH	33.1	J	F	35.5	J	F	22.4	J	F	28100		r
Iron	36800			32500			31100			20400			39000			23300			28100 7.7		
Lead	10.7			11.2		]	10.8		Н	41.8	10000	1	11.3			6.0			10000		
Magnesium	11100			10800			9820			5770			13600			6540			000000000000000000000000000000000000000		
Manganese	617			613			486		v kanannasas	221	0000000	× × × × × × × ×	496	s		272			438	4	
Mercury	0.06 1	j	1	0.06	L J	CI	0.06	U	1	0.20		1	0.06 T	J	I	0.15		I	0.06 T	기	I
Nickel	28.2	90000000		24.2			20.7			13.3	ed 5000	::Doocoooo	29.5			17.4	50 3350		18.1		
Potassium	4820			3980			5260			4170			5190			2840			5230		-
Selenium	1.2	SOLOGOOD IJJ	BEG	1.2	U J	BEG	1.1	UJ	BEG	0.25	JJ	BE	1.2 \	U J	BEG	000000000000000000000000000000000000000	0.000	BE	1.1 \	5-100m	BEC
Silver	0.70	00/00000		0.71	ال		0.67	U		0.75	J		0.74 1	U		0.68 T	~~~		0.67		
Suvei Sodium	2690	*10000	\$ \$100,000,000	1990	500 0 0 0 0 0 0	1211000000000	2250			1130	LJ	C	4120		A 0.000.00000	847 1	LJ	C	875	300 00000	98, 90,000
Thallium	1.2	nl .	G	1.2	ט	G	1.1	บ	G	1.3	U	G	1.2	U	G	0.25 1	J J	E	1.1	U	G
Thamum Vanadium	73.8	9		62.7	W 1000	001000000000000	60.5			41.7			75.8			49.8	0010.000	150-1000000000000	59.3	200,000	888 888 888
	88.2		В	82.6	J	В	76.6	J	BH	179	J	В	85.2	J	В	50.9	J	В	71.9	J	В
Zinc	00.2			<b>***</b> *********************************	30 350	20 <b>1</b> 00000000000000000000000000000000000	4:00:00:00:00:00:00 <del>5</del> 6550	uwa pasada	200000000000000000000000000000000000000									500 00000000000	900000000000000000000000000000000000000		
•																					
n (0.114-	84.1	02		84.1	%	sapassasasas	85.7	%	10000000000	79.0	%		81.5	%		80.6	%	a a bassas ta	85.9	%	0004000000
Percent Solids	84.1	/0		04.1	<b>(</b>	8 88888	l		dissi i										l		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit. MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample CRDL-Contract Required Detection Limit

# ANALYTICAL RESULTS TABLE 1A

Case No.: 2

25218 Memo #03

Site:

Victoria Golf Course

Lab.:

Analytical Resources, Inc. (ARI)

Reviewer:

Dina David-Bailey, ESAT/Lockheed

Date:

February 14, 1997

Analysis Type:

Low Concentration Soil

Samples for Total Metals

Concentration in mg/Kg

Station Location Sample I.D. Date of Collection	SS-4-20 MYX31 12/10/96		6	SS-5-10 MYX31 12/10/96	6		SS-5-20 MYX31 12/10/90	7		SS-7-10 MYX320 12/10/96			SS-7-20 MYX32 12/9/96			SS-9-10 MYX324 12/10/96			SS-10-10 MYX32 12/10/96 Result	5 D1	Com
Parameter	Result		Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Kesuit	VMI	Com
				-			vannoneen on oo oo oo oo oo oo oo oo oo oo oo oo	501000000		000000000000000000000000000000000000000	************************************	100000000000000000000000000000000000000		188888		A4400			31400		
Aluminum	12100			26800			1 <del>9</del> 700			10800			16400			24400	D		11.6 U	D	A
ntimony	12.3 U	J R	A	16.6	J	В	12.1 U	J R	A	13.8 U	R	A	14.0 U	R	A	11.0 U	K	A H	5.5		l.
Arsenic	4.0			9.2			15.6			6,5			7.3			13.3		deren and	200	T	D
Barium	112	J	D	242	J	D	167	J	D	821	J	D	341	J	D	250	J	D	0.89 I	•	C
Beryllium	0.32 1	J	c	0.73 I	J	C	0.61 1	LJ	C	0.65 L	J	C	0.3 <b>6</b> L		C	0.64 L	J	c	0.46 U		1
Cadmium	0.49 โ			0.99 I	J	C	0.76 1	L J	c	6.2	10000	:100:0000000000000000000000000000000000	2.0		8   600000000000000000000000000000000000	1.5		1	200000000000000000000000000000000000000	<u>'</u>	
Calcium	5590			24600			97400			10600			23700			19500		H	9880		
Chromium	16.3	on possession	1000000000000	33.0			30.9			912	at 00000	000000000000	48.0	140000	200000000000000000000000000000000000000	33.3			39.1		
Cobalt	8.3	J	c	12.5			11.2	L J	С	17.2			13.1 I	J	c	12.6			15.4		
Соррег	16.9	J	F	36.6	J	F	30.3	J	F	376	J	<b>F</b>	176	J	F	345	J	FH	38.1	J	F
	19200			34000			26000			35800			27200			28700			38200		
Iron Lead	5.1	2012/09/20	313330333333	9.5	or score		9.8			942		uu uusanaanaa	245	2 100000	204203030366	233	2 232	H	10.6		
Magnesium	6760			12500			15200			4720			6440			9280			11400		
300000 <del>0</del> 000000000000000000000000000000	478	12, 10,000,00	5,0000000000	_ 581	300,00000	0.00000000000	980			371	. ]		368			584	85 8333	55-555555555	613		.40200
Manganese	0.05		1	0.06 1	ı	1	0.06	U	ı	0.72			0.31		I	0.14		1	0.05 1	J	1
Mercury	13.9	9	: - <del>*</del>	21.8	774,00000	201007000000	26.9			86.8			38.8		220000000000	29.0	100000	300 30000000000000000000000000000000000	23.8		33 400 600
Nickel	2780			6710			2350			3980			4160			5200			5060		
Potassium	0.23		BE	1.1	sabasa III I	BEG	5 (35) (37) (37) (37) (37) (37)	UJ	BEG	0.28 ਪ	J J	BE	0.28	U J	BE	1.1 \	IJJ	BG	1.1	9 <b>1</b> 888	BG
Selenium	0.23	864 8886	DE	0.71	200 (200)		0.72	2000-0000		1.8 1	0010000	C	0.86	LJ	C	0.66 1	U		0.70	U	
Silver	CALL STANDARD AND AND AND AND AND AND AND AND AND AN		c	3010	4	50 <b>5</b> 0000000000	3180	00040000	.2540000000000	1370 1		С	1470			763	L  J	c	2730	: - :   1994;	S2-455354
Sodium	356	200 B 300 B	E	1.1		G	1.2	u	G	1.4 1	a   886	G	1.4	υ	G	1.1	U	G	1.1	U	G
Thallium	0.23	U J	<b>E</b>	73.5	<b>*</b>  :::		56.3		20 <b>20 20</b> 000	179		AND CONTRACTOR	50.0			59.0	l		78.8		os   sees
Vanadium	38.0		b	85.3	J	В	61.2	J	В	1140	J	В	832	j	В	802	J	BH	97.7	J	В
Zinc	45.8		В	6.56	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		U1.2	on O.S.		9 00000 00000 TOTAL TOTAL		yan panesessia								500 5000	2000-000500
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				02.	0/		80.5	0/4		· 71.5 °	/a	000100000000000000000000000000000000000	70.0	%		87.9	%	1	84.4	%	6. Jal 2007 -
Percent Solids	81.5	%	70 300000000	83.1	70		60.3	<b>′</b> 9	24	l											

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

# ANALYTICAL RESULTS

TABLE 1A

25218 Memo #03 Case No.:

Victoria Golf Course Site:

Analytical Resources, Inc. (ARI) Lab.:

Dina David-Bailey, ESAT/Lockheed Reviewer:

February 14, 1997 Date:

Analysis Type:

Low Concentration Soil

Samples for Total Metals

Concentration in mg/Kg

Sample I.D.	Lab Bla	nk 2		MDL			CRDL					·					<del></del>	<del> </del>		1	.T.
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
			200000000000																		
Aluminum	4.0 T			4.0			40.0							\$100000	000000000000000000000000000000000000000	300000000000000000000000000000000000000					
Antimony	10.0 <b>U</b>	60 <b>1</b> 0000000		10.0			12.0														
rsenic	0.20 1		C	0.20			2.0							555   555   555	000000000000000000000000000000000000000	500000000000000000000000000000000000000	300000 Barrista	1			
Barium	0.20 1	40000000		0.20			40.0														1
Beryllium	0.20 1			0.20			1.0								*************	P0000000000000000000000000000000000000	22-00-00-00-00-00-00-00-00-00-00-00-00-0				
Cadmium	0.40			0.40			1.0														
Calcium	15.6		c	4.0			1000						<b> </b>	A. (\$100.000)	4		CARLOS SE POSSOS				
Chromium	1.0			1.0			2.0														
Cobalt	0.60			0.60			10.0 5.0					183577746	#upecoccosssssssssssss	00000000	Section 50000	do-consission con	ALANA SECTION				
Copper	0.40			0.40			20.0		1												
ron	4.0			4.0			0.60					erocepociolosis	vernoppromodomodos (199		<del></del>	a construence de construence					
Lead	0.20			0.20	0000 100000		1000														
Magnesium	4.0			4.0	and process		3.0				6686 <b>(</b> 18888)	0 0000000000000000000000000000000000000		arapitatia							55500000000
Manganese	0.20	40040000	1	0.20 0.05	4660 00000		0.10														
Mercury	0.05			450000000000000000000000000000000000000			8.0	88618888	33 (50 (50 (50 (50 (50 (50 (50 (50 (50 (50		SSS (1975)	A 000000000000000000000000000000000000	×	v	***					00000000000	000 000000
Nickel	2.0	MAG 100000		2.0 80.0	90000 <b>9</b> 00000	1	1000														
Potassium	80.0			0.20			1.0		\$6 S06666666	,	10000 00000	N4000000000		- Appendix						00000 0000	000 000000
Selenium	0.20			0.20	10000		2.0														
Silver	0.60			10.0			1000	2001000	0.0000000000000000000000000000000000000	340000000000000000000000000000000000000	00000		y a green with the transfer of the first					T20400000000		8000 do 100 do	-
Sodium	10.0		li i	0.20	March 2000		2.0														
Thallium 	0.20			0.40			10.0	p	40 <b>(</b> 00000000000000000000000000000000000	000000000000000000000000000000000000000		ng nagarana.						000 00000000	289 200000000000000000000000000000000000	86668	888488888
Vanadium 	0.40	2200 0000		0.40	0000 B	1	4.0	000010000													
Zinc	0.80	U		<b>U.8</b> U				20010000	20 <b>4</b> 000000000									000000000000000000000000000000000000000	000 00000000000000000000000000000000000		2000 20000
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				1				1950 (1950) 1950 (1950)	gga <b>t</b> alabarakan	9: 00:00:00:00:00:00:00:00:00:00:00:00:00	100000 1000	and provided the	A STATE OF THE STA					ļ	i	İ	Ì

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample CRDL-Contract Required Detection Limit



#### TABLE 1B

### DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February, 1994.

- The analyte was analyzed for, but was not detected above the level of the reported value. The reported value is either the sample quantitation limit or the sample detection limit for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- Indicates results which fall between the sample detection limit and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The associated value is an estimated quantity. The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The data are unusable. The analyte was analyzed for, but the presence or absence of the analyte can not be verified.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected. The reported value is an estimate and may be inaccurate or imprecise.

### Laboratory blanks and associated samples

Lab Blank 1: MYX292, MYX294, and MYX297 through MYX300 (Waters)

Lab Blank 2: MYX308 through MYX317, MYX320, MYX321, MYX324, and MYX325 (Soils)

TPO: []FYI []Attention [X]Action

Region 9

#### INORGANIC REGIONAL DATA ASSESSMENT

CASE	NO. <u>25218 Memo #03</u>	LABORA	ATORY A	K.I.		
SDG	NO. <u>MYX292</u>	SITE 1	NAME <u>Vi</u>	ctoria G	olf Cour	se
SOW	NO. ILMO4.0	REVIE	W COMPLET	ION DATE	_Februa	ry 14, 1997
REVI	EWER [ ] ESD [X] ESAT	REVIE	WER'S NAM	E <u>Dina</u>	<u>David-Ba</u>	iley
NO.	OF SAMPLES: WATER 6 SOII	14	OTHER		•	
			ICP	GFAA	Hg	Cyanide
1.	PRESERVATION AND HOLDING TIMES		O	_ 0_		
2.	CALIBRATION				0	
3.	BLANKS					
4.	ICP INTERFERENCE CHECK SAMPLE	(ICS)				
5.	LABORATORY CONTROL SAMPLE (LCS	)	0		0	
6.	DUPLICATE ANALYSIS		<u>x</u>			
7.	MATRIX SPIKE ANALYSIS		z	<u>Z</u>	<u> </u>	
8.	METHOD OF STANDARD ADDITION (M	SA)			•	
9.	ICP SERIAL DILUTION		<u>x</u> _		•	
10.	SAMPLE QUANTITATION		O	0	_ 0	
11.	SAMPLE VERIFICATION		0			
12.	GFAA ANALYTICAL SPIKE			M		
13.	OVERALL ASSESSMENT		Z	<u>z</u>	<u> </u>	-

- O = Data have no problems or problems that do not affect data quality.
- X = Data are qualified due to minor problems.
- M = Data are qualified due to major problems.
- Z = Data are unacceptable.
- N/A = Not Applicable.

TPO ACTION: The results reported for antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325 and for selenium in water samples MYX292, MYX294, MYX297, and MYX298 are considered unacceptable as less than 30% of the matrix spike was recovered.

TPO ATTENTION: None.

AREAS OF CONCERN: A low recovery of 60% was reported for mercury in the analysis of the CRDL standard (CRA) for soils. While there are no criteria established for CRDL standard recoveries, low recoveries indicate uncertainty for sample results near the CRDL. The low CRA recovery may indicate low bias and possible false negatives for mercury results in all of the soil samples except sample MYX320.



In Reference to Case No(s).: 25218 Memo #03

# Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

### Telephone Record Log

Date of Call:	February 5, 1997
Laboratory Nam	me: Analytical Resources, Inc. (ARI)
Lab Contact:	_Jeff J. Reitan
Region:	9
Regional Conta	act: <u>Dina David-Bailey, ESAT/Lockheed</u>
Call Initiate	By: Laboratory X Region
	the following sample delivery group(s): undwater and Soil Samples for Total Metals)

### Summary of Questions/Issues Discussed:

5.

- 1. The results reported on Form 1 (page 7), Form 6 (pg. 62), and Form 9 (page 68) for sodium in samples MYX292 and MYX292L appear to be incorrect. Pages 220 and 221 of the raw data indicate a result of 580,000 ug/L for sample MYX292 and a result of 555,300 ug/L for sample MYX292L. Please clarify.
- 2. An incorrectly calculated MSA result for arsenic in sample MYX312 was reported on Form 1 (page 17). The correct result should be 5.7 mg/Kg, not 5.9 mg/Kg as reported. Please clarify.
- 3. The benchsheet for %Solids determination (page 467) shows a tare + dry sample weight of 8.388 grams for sample MYX325; however, this weight was transcribed incorrectly as 8.338 grams on the calculation sheet (page 466). An 84.4% solids was obtained by the data validator based on the benchsheet data, as opposed to 83.8% reported on Form 1 (page 26) for sample MYX325. Please clarify.
- 4. The QC results reported on the forms (pages 34-40, etc.) for arsenic appear to be from a different analysis, not associated with this SDG. The QC results obtained for arsenic from the 1-13-97 MSA analyses do not match the reported QC results. Please clarify.
  - (a) The ICP runlog does not include the water samples.
    - (b) Data for sample MYX292L were reported but this sample was not marked with an "X" on page 78 of the ICP runlog.
    - (c) Please explain the large time gap between a CCB (run time: 1925) and sample MYX298 (run time: 1941) analyzed by ICP.
- 6. Please explain why most soil samples were initially run diluted for lead by GFAA. Exhibit A, Section II.A.3 of the ILM04.0 SOW specifies that samples must be initially run undiluted.

In Reference to Case No(s) .:

25218 Memo #03

### Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

#### Telephone Record Log

#### Summary of Resolution:

- The laboratory corrected and resubmitted Forms 1, 6, and 9 for sodium 1. results in samples MYX292 and MYX292L.
- The laboratory corrected and resubmitted Form 1 for arsenic result in 2. sample MYX312.
- The laboratory corrected the percent solids for sample MYX325 based on the benchsheet data and resubmitted the Form 1. The corrected percent solids (84.4) was used to recalculate the results for all of the analytes in sample MYX325.
- The laboratory corrected the ICV/CCV results initially reported for 4. arsenic on the Form 2As. The ICV/CCV results for arsenic now match the raw data.
- (a) The laboratory provided the missing runlog.(b) Page 78 (runlog) was corrected for sample MYX292L. 5.

  - (c) The analyst was preparing dilutions, resulting in a large time gap between a CCB and sample MYX298.
- The laboratory states that all dilutions performed for lead by GFAA were 6. based on the ICP data (Exhibit D).

ina David-Baile

(1) Lab Copy, (2) Region Copy, (3) CLASS Copy Distribution:

LOCKHEEDMARTIN

Lockheed Martin Environmental Services

**Environmental Services Assistance Team, Region 9** 

301 Howard Street, Suite 970, San Francisco, CA 94105

Phone: 415-278-0570 Fax: 415-278-0588

: Pt 20/97 1.0

MEMORANDUM

TO:

Rachel Loftin

Site Assessment Manager &

States Planning and Assessment Office, SFD-5

THROUGH:

Rose Fong Cose

ESAT Regional Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Jack Berges 5

Team Manager

Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005 Work Assignment No.: 09-96-0-4 Technical Direction No.: 9604113

DATE:

February 14, 1997

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE:

Victoria Golf Course

SITE ACCOUNT NO.:

CAD980818926 CERCLIS I.D. NO.:

CASE NO.:

25218 Memo #04

SDG NO.:

MYX293

7.7.

LABORATORY:

Analytical Resources, Inc. (ARI)

ANALYSIS:

Total Metals

SAMPLE NO.:

6 Water Samples (See Case Summary)

COLLECTION DATE:

December 10, 11, and 13, 1996

REVIEWER:

Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585, or Rose Fong (QA Office/EPA) at (415) 744-1534.

#### Attachment

cc: Bruce Woods, TPO USEPA Region 10

TPO: [X] FYI

[ ]Attention

[ ]Action

SAMPLING ISSUES: [X] Yes

[ ]No.



#### Data Validation Report

Case No.:

25218 Memo #04

Site:

Victoria Golf Course

Laboratory: Analytical Resources, Inc. (ARI) Dina David-Bailey, ESAT/Lockheed

Reviewer: Date:

February 14, 1997

#### I. Case Summary

SAMPLE INFORMATION:

SAMPLE #:

MYX291, MYX293, MYX295, MYX301, MYX302, and

MYX334

COLLECTION DATE: December 10, 11, and 13, 1996

SAMPLE RECEIPT DATE: December 13 and 14, 1996

CONCENTRATION & MATRIX: Low Concentration Groundwater

FIELD QC: Field Blanks (FB):

None

Equipment Blanks (EB):

MYX300\*, MYX301, and MYX302 (\*see Additional Comments)

MYX293

Background Samples (BG):

Duplicates (D1):

MYX295 and MYX334

LABORATORY QC:

Matrix Spike: MYX293

Duplicates:

MYX293

ICP Serial Dilution: MYX293

ANALYSIS: Total Metal
-----------------------

Sample Preparation and Digestion Date

Analysis

<u>Date</u>

Analyte

January 10, 1997

ICP Metals

January 3, 1997

GFAA: Arsenic

January 3, 1997 January 3, 1997 Lead

January 10, 1997 January 10, 1997

January 3, 1997 Selenium

January 9 through 10, 1997

Thallium

January 3, 1997

January 9, 1997 January 6, 1997

Mercury

January 4, 1997

TPO ACTION:

None.

### TPO ATTENTION:

None.

#### SAMPLING ISSUES:

The laboratory case narrative states that sample MYX291 was received unpreserved. All of the analyte results in sample MYX291 are estimated (J) due to inadequate sample preservation.

#### ADDITIONAL COMMENTS:

\*The results for equipment blank sample MYX300 are included in Case 25218 Memo #03, sample delivery group (SDG) MYX292.

### ADDITIONAL COMMENTS: (continued)

The sampler designated one laboratory quality control (QC) sample for each of the matrices in this case. This case contains 14 soil samples and 12 water samples. Since the laboratory separated the water samples into two different SDGs, another QC sample (MYX293) was selected by the laboratory for this SDG. However, note that sample MYX293 is a background sample. A QC sample should be an investigative sample collected from sampling points which are known or suspected to be contaminated.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (SOW), ILM04.0, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994.

#### II. Validation Summary

The data were evaluated based on the following parameters:

Para	<u>meter</u>	<u>Acceptable</u>	Comment
1. 2. 3.	Data Completeness Sample Preservation and Holding Times Calibration a. Initial Calibration Verification	Yes No Yes	В
	b. Continuing Calibration Verification Calibration Blank CRDL Standard	on	
4.	Blanks	Yes	
	a. Laboratory Preparation Blank		
	b. Field Blank		
	c. Equipment Blank		
5.	ICP Interference Check Sample Analysis	Yes	
6.	Laboratory Control Sample Analysis	Yes	_
7.	Spiked Sample Analysis	No	C
8.	Laboratory Duplicate Sample Analysis	Yes	
9.	Field Duplicate Sample Analysis	Yes	
10.	GFAA QC Analysis	No	D ,
	a. Duplicate Injections		
	b. Analytical Spikes	•	
	c. Method of Standard Addition		
11.	ICP Serial Dilution Analysis	.Yes	
12.	Sample Quantitation	Yes	A
13.	Sample Result Verification	Yes	

#### III. Validity and Comments

- A. The following results are estimated and are flagged "J" in Table 1A.
  - All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

# LOCKHEELMARTIN

- B. The following results are estimated due to inadequate sample preservation. The results are flagged "J" in Table 1A.
  - All of the analytes in sample MYX291

Sample MYX291 did not meet the 40 CFR 136 (Clean Water Act) sample preservation criteria. The laboratory case narrative states that sample MYX291 was received unpreserved. The laboratory indicated that the measured pH in sample MYX291 was not recorded. (See the telephone record log for more information.)

Sample results may be biased low, and where nondetected, false negatives may exist.

The 40 CFR 136 (Clean Water Act) technical holding time criteria were not exceeded for any of the analytes in any of the samples.

- C. The following results are estimated because of matrix spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.
  - Selenium in samples MYX291, MYX293, MYX295, and MYX334

The matrix spike recovery result for selenium in QC sample MYX293 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for selenium are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	MYX293 % Recovery	MYX293 % Bias
Selenium	59	-41

Since the results reported for selenium in the samples listed above are nondetected, false negatives may exist.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement methodology.

- D. The following results are estimated because of GFAA analytical spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.
  - Lead in samples MYX293, MYX301, and MYX302
  - Selenium in sample MYX293

The analytical spike recovery results for lead and selenium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	Sample Number	<pre>% Recovery</pre>	<pre>% Bias</pre>
Lead	MYX293 MYX301 MYX302	84 84 74	-16 -16 -26
Selenium	MYX293	53	-47

The post-digestion spike recovery results for lead and selenium, as noted above, show an analytical deficiency. Since the results

# LOCKHEEDMARTIN

reported for lead and selenium in the samples listed above are nondetected, false negatives may exist.

The post-digestion analytical spike recovery result of 50% in duplicate sample MYX293 for selenium also did not meet the 85-115% criteria for accuracy.

Arsenic, lead, selenium and thallium were analyzed by the graphite furnace atomic absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination.

# ANALYTICAL RESULTS TABLE 1A

Case No.: 25218 Memo #04

Site: · Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

Concentration in µg/L

tation Location ample I.D. tate of Collection	GW-1-1 MYX29 12/13/96			GW-3-1 MYX29		<b>3</b>	GW-5-1 MYX295 D 12/11/96	01	GW-13-1 MYX301 12/10/96			GW-14- MYX30 12/11/96	2 EB		GW-28-1 MYX334 12/11/96	4 D1		Lab Blan	,	[ <u></u>
arameter	Result	Val	Com	Result		Com	Result Va	l Com	Result V	/al C	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
ar ameter		1									**********							20.0.11		
Juminum	115 L	J	AB	20.0 l	J		20.0 U		20.0 U			20.0 L			27.7 L		A	20.0 U	9.000,000	
Intimony	50.0 L	4	В	50.0 U	J		50.0 U		50.0 U	000000000000000000000000000000000000000	300000000	50.0 L	v/h00000044		50.0 U	5 10000000		50.0 U 1.0 U		
rsenic	1.0 L	40000000	В	1.0 I	J	A	1.7 L J	A	1.0 U			1.0 U			1.7 L	4	A	White Control Control of the control		A
arium Barium	92.6 L	1	AB	42.1 I	J	Α	325		1.0 U	s. 45 0 100	:::::::::::::::::::::::::::::::::::::::	1.0 <b>U</b>	5 2000001		339			2.6 L 1.0 U		A
Beryllium	1.0 L	40000004	В	1.0 U	J		1.0 U		1.0 U			1.0 U			10 L	.,		beddesparer sterr sam gan eus u bes		10000000
Cadmium	2.0 L		В	2.0 โ	J		2.0 U		2.0 U	*****	5205555555	2.0 U	01-000000		2.0 L	ار الدادات		~ 2.0 U		l
Calcium	314000	J	В	173000			99700		119 L	J.	A	32.6 1		A	106000			20.0 U		1000000
Chromium	5.0 โ	J J	В	5.0 1	J		5.0 U		5.0 U	10000000	0100000000	5.0 T	0.0000000		5.0 U	(4000000)		5.0 U	48000000	
Cobalt	3.0 I	0.0000000	В	3.0 1	J		3.0 U		3.0 U			3.0 (			3.0 L	***		3.0 U		100000
Copper	2.0 U		В	5.8		A	2.0 U		3.7 L	J	A	2.0 1		A	2.0 U			2.0 U	Sec. 450-1633	
ron	5960	J	В	20.0	(C) (C) (C)		20.0 U		20.0 U			20.0 1			20.0 l			20.0 L		
Lead	1.0 (	J J	В	1.0		D	1.0 U		1.0 U	J	D	1.0 \		D	1.0 U	U)		1.0 U	200000	1
Leau Magnesium	82400	1	В	45000			38000		20.0 U			20.0			40900			20.0 L		
viagnesium Manganese	1400	J	В	411			419		1.7 L	J	A	1.3	666 2000 200	A	451			1.1 L	60-000000	A
	0.10 1	1 1	В	0.10	וט		0.10 U		0.10 U			0.10			0.10 1	~~~		0.10 L		
Mercury Nickel	20.7	*******	AB	10.0			10.0 U		10.0 U		annani (1886)	10.0	U ·	140000000000	10.0	U		10.0 U		
Nickei Potassium	15000	j	В	8570			7730		400 U			400	U		7580			400 l		
rotassium Selenium	1.0	00 0 T 0 0 0	ВС	5 0000000000000000000000000000000000000	U J	CD	1.0 U J	С	1.0 U			1.0	U		1.0	884 888	C	1.0 U		
Selemum Silver	3.0		В	3.0	366 0000		3.0 U		3.0 U			3.0			3.0	U		3.0 l		
222.221.111.111.1111.1111.1111.1111.1111.1111.1111	371000	J	В	418000	5500000	in landaria	78100		324 L	J	A	253	L J	A	83400			99.1 1	X 1 (1000)	A
Sodium	1.0	and who we	В	1.0	บ		1.0 U		1.0 U			1.0	U		1.0			1.0 1		
Thallium	9.6		AB	5.7		A	A 570 500 500 500 500 500 500 500 500 500	JA	3.0 L	J	A	3.8	L J	A	4.6	000 (000)	A	3.7 1		A
Vanadium	44.6	ij	B	18.3	0.00 (0.00)	A	4.9 L	J A	6.1 L	J	A	4.3	LJ	A	9.8	L  J	A	4.3	L J	A
Zinc	77,0			1	155. HTH	0,4100/76000							00000000000	100000000000000000000000000000000000000		333	000 000000000			
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	3 2000000000000000000000000000000000000		deser-																	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

### ANALYTICAL RESULTS

TABLE 1A

Case No.:

25218 Memo #04

Site:

Victoria Golf Course

Lab.:

Analytical Resources, Inc. (ARI)

Reviewer:

Dina David-Bailey, ESAT/Lockheed

Date:

February 14, 1997

Analysis Type:

Low Concentration Groundwater

Samples for Total Metals

Concentration in µg/L

Parameter Aluminum Antimony Arsenic Barium	20.0 50.0 1.0	Val C	om	Result	Val	Com								<del>,</del>						٦	10
Aluminum Antimony Arsenic	50.0				T T	- UIII	Result	Va	l Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Antimony Arsenic	50.0												•								
Arsenic	valuuruvun maananan tala ah 55555	· ) [		200										50 0000000	40000000000	100000000000000000000000000000000000000					
				60.0																	
Rarium				10.0							460 46666			000000	300000000000000000000000000000000000000						
# 4554 A 6556 6566 C - 200 C C C C C C C C C C C C C C C C C C	1.0			200 5.0																	1
Beryllium	1.0			5.0 5.0					> 1000000000000000000000000000000000000		0001000000	1		1				Josephania	\$1000000000000000000000000000000000000	c10090 - 2000	03000000
Cadmium	2.0			5000					1			1									1
Calcium Classicas	20.0 5.0			10.0		90000000000			, ng consider ded												20 22 3 T 3 E S
Chromium Cabalt	3.0			50.0																	
Cobalt Copper	2.0			25.0	2242051	ganden ociáni							400000000000000000000000000000000000000	200 2000	0.0000000000000000000000000000000000000			300000000000000000000000000000000000000			
Copper Iron	20.0			100														1			
Hon Lead	1.0		5151000000010	3.0			•					-dbscccc <del>0000</del> 0		0.046668	s (0.00000000000000000000000000000000000			8			
Magnesium	20.0			5000																	
Manganese	1.0	000 2000 000	200000000000000000000000000000000000000	15.0							800 30000	04000000000									1
Mercury	0.10			0.20																	
Nickel	10.0			40.0		aannaa ee		100000000000000000000000000000000000000	ess et 2555000			64000000000									
Potassium	400			5000																	(A) (B) (B)
Selenium	1.0			5.0		0000000000	s 4000000000000000000000000000000000000	****	40 P 1000 035		***										
Silver	3.0			10.0																	200 (200 (200
Sodium	50.0		55555 5 5 6 5 6 5 6 5	5000	00/0000000	80.96660000	J 364 (1999) 486 (1996) 486 (1996) 486 (1996) 486 (1996) 486 (1996) 486 (1996) 486 (1996) 486 (1996) 486 (1996)														
Thallium	1.0			10.0																	3000000000
Vanadium	2.0		50,000 <b>(</b>	50.0	2.000000	888) 8888															
Zinc	4.0			20.0													20 <b>22 (</b> 2016)	50 <b>5</b> 0000000	2. <b>4</b> 0.000 (00.00000000000000000000000000000	996-10-000 I D6-00-	and the second of the
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										-							00000	600000000	to programme and a second second		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

LOCKHEE MARTIN

#### TABLE 1B

### DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February, 1994.

- The analyte was analyzed for, but was not detected above the level of the reported value. The reported value is either the sample quantitation limit or the sample detection limit for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- Indicates results which fall between the sample detection limit and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The associated value is an estimated quantity. The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The data are unusable. The analyte was analyzed for, but the presence or absence of the analyte can not be verified.
- UJ . A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected. The reported value is an estimate and may be inaccurate or imprecise.

TPO: [X] FYI [ ] Attention [ ] Action

Region 9

# INORGANIC REGIONAL DATA ASSESSMENT

CT CT NO	25218 Memo #04	LABORA	TORY	ARI			-
CASE NO.	,				olf Cour	rse	
SDG NO.	MYX293						
SOW NO.	ILM04.0	REVIEW	COMPLE'	TION DATE	Februa	ary 14, 199	4
REVIEWER	[ ] ESD [X] ESAT	REVIEW	ier's nai	ME <u>Dina</u>	David-Ba	ailey	-
NO. OF SA	MPLES: WATER 6 SOI	:L	OTHE	R			
			ICP	GFAA	Нg	Cyanide	
1. PRESE	RVATION AND HOLDING TIMES	5	<u> </u>	x	<u> </u>		
2. CALIB	RATION	•	0				
3. BLANK	SS	e*	0	0_	_ 0_		
4. ICP I	NTERFERENCE CHECK SAMPLE	(ICS)		•			
5. LABOR	ATORY CONTROL SAMPLE (LCS	S) ·		0.	N/A		
6. DUPLI	CATE ANALYSIS			o	0		
7. MATRI	IX SPIKE ANALYSIS			X		<del></del>	
8. METHO	DD OF STANDARD ADDITION (	MSA)	•	N/A			
9. ICP 8	SERIAL DILUTION		0		• .		
10. SAMPI	LE QUANTITATION				0		
11. SAMPI	LE VERIFICATION		0		0	<u> </u>	
12. GFAA	ANALYTICAL SPIKE			<u> x</u>			
13. OVER	ALL ASSESSMENT	•	<u> </u>	, <u>x</u>	<u>x</u>	· · · · · · · · · · · · · · · · · · ·	
x - Data	have no problems or prob are qualified due to min are qualified due to maj	or prod	tems.	ot affect	data qı	uality.	

TPO ACTION: None.

TPO ATTENTION: None.

AREAS OF CONCERN: None.

M = Data are qualified due Z = Data are unacceptable.

N/A = Not Applicable.



In Reference to Case No(s).: 25218 Memo #04

# Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

#### Telephone Record Log

	Date of Call:	February 6, 1997
	Laboratory Name: _	Analytical Resources, Inc. (ARI)
	Lab Contact:	Jeff J. Reitan
	Region:	9
	Regional Contact:	Dina David-Bailey, ESAT/Lockheed
	Call Initiated By:	Laboratory X Region
In re	eference to data for the fo SDG No. MYX293 (Groundwa	ollowing sample delivery group(s): ter samples for Total Metals)
Summa	ary of Questions/Issues Di	scussed:
1.	The laboratory indicated received unpreserved. Preserved. Preserved.	in the case narrative that sample MYX291 was lease provide the actual measured pH value in
2.	Please explain why the mwere initially analyzed	atrix spike samples for arsenic and thallium at a two-fold dilution, while the unspiked

- sample was not.

  3. Did the laboratory call the Region regarding the selection of sample MYX293 for QC analysis? Sample MYX293 was not specified for laboratory QC analysis on the chain-of-custody form.
- 4. The case narrative incorrectly indicates that sodium in samples MYX293 and MYX293D was reported from a 5-fold dilution. Raw data and the Form 14 indicate a dilution factor of two. Please revise the case narrative and resubmit.

#### Summary of Resolution:

- 1. The laboratory used a pH paper but did not record the measured pH in sample MYX291. In the future, the laboratory will make an effort to record pH values greater than 2.
- 2. Due to high spike levels, the matrix spike samples for arsenic and thallium were diluted in order to quantitate near midpoint of the calibration curve.
- 3. The laboratory did not call the Region regarding the selection of sample MYX293 for laboratory QC analysis but will call in the future.
- The corrected case narrative was resubmitted.

Alreans David-Barley Signature

2-14-97 Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy



# Contract Laboratory Program REGION 9/LABORATORY COMMUNICATION SYSTEM CSF COMPLETENESS EVIDENCE AUDIT PROGRAM Telephone Communication Summary Form

AUDIT NO.:	2/97/11	LAB CONTACT: <u>Jeff J. Reitan</u>	
CASE NO.:	25218 Memo #04	LAB CODE: ARI	
SDG NO.: _	MYX293	LAB NAME: Analytical Resources, Ir	1C.
FILENAME:	25218M04.TCS	LAB LOCATION:Seattle, WA	

Summary of Questions/Issues Discussed:

The following items were noted during the case audit of Case 25218/SDG MYX293. Please respond within 10 calendar days of receipt of this Telephone Communication Summary Form by submitting copies of the corrected forms or documenting the corrections in a memorandum or amended case narrative.

- The Lab column was not checked for the presence of Item 1, Inventory Sheet (DC-2).
- 2. The page numbers for Item 24, Preparation Logs Raw Data, should range from page 0299 to 0301 instead of page 0299 to 0302. Consequently, the Airbill entry in Item 27, EPA Shipping/Receiving Documents, should list the beginning page as 0302 instead of page 0303. Page 0302 is the cover page for the EPA Shipping/Receiving Documents.
- 3. Two pages of the ICP raw data were marked as page 94 and no page 96 was found. The auditor designated the ICP raw data for sample MYX293S as page 94, sample MYX295 as page 95, and sample MYX302 as page 96.

#### Summary of Resolution:

- 1.-2. The laboratory corrected and resubmitted a copy of the Form DC-2.
- The laboratory noted and agreed with the auditor.

Auditor, ESAT/Lockheed

January 31, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

## LOCKHEE MARTIN

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.:	2/97/12	LAB CONTACT: <u>Jeff J. Reitan</u>
CASE NO.:	25218 Memo #03	LAB CODE: ARI
SDG NO.: _	MYX292	LAB NAME: Analytical Resources, Inc.
FILENAME:	25218M03.TCS	LAB LOCATION: Seattle, WA

Summary of Questions/Issues Discussed:

The following items were noted during the case audit of Case 25218/SDG MYX292. Please respond within 10 calendar days of receipt of this Telephone Communication Summary Form by submitting copies of the corrected forms or documenting the corrections in a memorandum or amended case narrative.

- 1. The Lab column was not checked for the presence of Item 1, Inventory Sheet (DC-2).
- The page numbers for Item 3, Inorganic Analysis Data Sheet (Form I-IN), should range from page 0006 to 0026 instead of page 0006 to 0025. Consequently, the beginning page number for Item 4, Initial & Continuing Calibration Verification (Form IIA-IN), should be page 0027 instead of page 0026.
- 3. The Chain-of-Custody Records entry in Item 27, EPA Shipping/Receiving Documents, should list the end page as 0474 instead of page 0473.
- 4. A raw data sheet in between page 384 and 385 was not paginated. The auditor has designated this page as page 384A. Please correct your copy of the data package.

#### Summary of Resolution:

- 1.-3. The laboratory corrected and resubmitted a copy of the Form DC-2.
- 4. The laboratory assigned a pagination number 384A.

Anditor, ESAT/Lockheed MW

January 30, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy